



VOLUME V, NUMBER 1, MARCH 1975



# PAG BULLETIN

Protein-Calorie Advisory Group  
of the United Nations System



United Nations



International Bank for  
Reconstruction and Development



United Nations

**COVER:**

One of the important nutrition issues for many developing countries concerns policies and practices for feeding infants and young children. Thus, in November 1974 a PAG Regional Seminar was held in Singapore to discuss certain aspects of this problem; the first 32 pages of this PAG Bulletin are devoted to the seminar's recommendations and background papers. The cover reflects the theme of the seminar by illustrating some of its topics: breast-feeding and weaning foods. (Left: Egypt, WHO photo by M. Jacot. Upper right: Morocco, United Nations photo by Muldoon. Lower right: Colombia, UNICEF photo by Ilsa Kraus.)

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# PAG

## BULLETIN

VOLUME V, NUMBER 1

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### RECOMMENDATIONS ON POLICIES AND PRACTICES IN INFANT AND YOUNG CHILD FEEDING AND PROPOSALS FOR ACTION TO IMPLEMENT THEM\*

#### I. Introduction

Malnutrition in infants and young children is a serious problem in many countries and is an important cause of ill health and high mortality. Although many causes have been identified, the ultimate pathway of action for all of them is inadequate and/or improper feeding. Unfortunately, many individuals including those with professional, social and official responsibility to care for infants and children lack correct information as to the recognized and acceptable forms of feeding, which are also nutritionally sound and economically feasible.

In 1972 and 1973, the Protein-Calorie Advisory Group held two international seminars for pediatricians and senior representatives of the infant food industry to discuss together the problem of deteriorating infant feeding practices in developing countries and to make recommendations for remedying the situation. The early discontinuance of breast-feeding by mothers in low income groups in urban areas, leading to malnutrition, illness and death among infants, has been a serious concern for all. These meetings led to the issuance of PAG Statement No. 23, "Promotion of special foods [infant formula and processed protein foods] for vulnerable groups". One of the recommendations made in the seminars was that the PAG should collaborate with industry, the medical and health profession and national governments to establish regional industry councils that would assess and act on problems related to inappropriate infant and young child feeding practices.

To implement this recommendation the PAG sponsored the first regional seminar on overcoming problems in infant and young child feeding practices which was held from 25 to 27 November 1974 in Singapore. Invitations were extended to participants from Hong Kong, Indonesia, Malaysia,

\*Adopted unanimously by the PAG Regional Seminar on Overcoming problems in infant and young child feeding practices, Singapore, November 1974. PAG document 1.14/45.

Philippines, Singapore, Sri Lanka and Thailand. Pediatricians, physicians, nutritionists, and officials from the health department of the governments from all countries except Hong Kong, senior officials from ten infant food companies operating in the region and representatives of FAO and WHO attended the seminar.

The objectives of the seminar were:

1. To recommend policies and practices for feeding young infants (zero to six months) and older infants (six to twelve months) and young children (twelve to twenty-four months) in the region;
2. To identify the roles of medical and health professions, the infant food industry and the government agencies in promoting desirable policies and practices;
3. To devise a permanent machinery for collaboration among these groups so that they could carry out effectively their identified roles in the region and in the individual countries.

This document presents a list of recommendations on policies and practices for feeding infants and young children in the countries represented at the seminar as approved by the participants. It also outlines proposed actions for implementing the policies and practices. The proposals herein are not presented in specific detail since they may require further examination, and modification may be necessary in order to suit the needs of different countries. The proposals also require further detailed analysis and interpretation before they can be applied in specific countries or in different parts of the same country.

## II. Feeding Policies and Practices Recommended

### A. Young Infants (zero to six months)

1. The food of choice for this age group is

mother's milk; thus breast-feeding should be promoted among all mothers and should be stressed in teaching in medical, nursing and paramedical schools. Such education should also be extended to community leaders.

2. There is a small proportion of women who for recognized reasons are unable to breast-feed at all or can do so only inadequately. This group should be helped to obtain appropriate professional aid to correct this situation or to arrange for an alternative feeding method. Even if a mother works, she should be encouraged to breast-feed whenever possible.
3. Alternative feeding of young infants should be viewed as a critical risk situation regardless of the type or nature of the food substituted for mother's milk. The four basic essentials for alternative feeding are sufficient money, proper use of substitute food, adequate food hygiene and proper maternal education.

### B. Older Infants (six to twelve months) and Young Children (twelve to twenty-four months)

1. Breast-feeding should be continued for as long as possible, but the declining supply of breast milk must be reckoned with. Therefore breast milk, although beneficial should not be considered the primary source of nourishment for infants beyond age 6 months.
2. The primary role should be taken over by nourishing foods other than breast milk; they must be introduced into the diet gradually, and their selection should be in stages, based on the physical consistency of the food used.
3. Suitable recipes and menus should be worked out locally in each country or region by the appropriate nutrition and health personnel according to the special conditions prevailing in the area. Efforts should be undertaken to prepare for each country a manual of home-made nutritious foods for weaning. As often as possible these foods should be part of the entire family's diet.

by Margaret Cameron and Yngve Hofvander (PAG document 1.14/26) lists many balanced diets that can be made from nutritious and inexpensive resources that are available locally in many parts of the world.

4. The importance of the weaning phase serves to emphasize the great need for inexpensive nutritious foods to be developed and marketed for young children. Such foods should as far as possible be prepared and blended locally in the countries, using commodities available in the area. These foods should play a major nutritional role, which milk plays in more affluent populations. Toward this end, it may be necessary to diversify the infant food industry and embark with government support to produce reasonably priced, easy to prepare and calorie-dense nutritious weaning foods.

### III. Proposals to the Medical and Health Professions for Action to Promote Desirable Policies and Practices

1. Education and motivation of a mother to breast-feed is an important first step that should start before the baby is born and should be reinforced during the period immediately following childbirth. Practical demonstrations by lactating mothers would be most useful for these efforts. Training should include simple care and hygiene of the breast without complicated ritual. The results of such efforts should be evaluated regularly.

2. A well-planned intensive training course should be given at periodic intervals for doctors, medical students, nurses, midwives and other health personnel who serve clinics, health centers, maternity wards and newborn nurseries. A comprehensive syllabus should be prepared to cover maternal and child nutrition; special characteristics of human milk; anatomy, physiology and psychology of lactation; the rationale, choices, methods and procedure for artificial feeding; weaning practices and weaning foods.

3. In instances where breast-feeding is not possible or cannot be continued, the mothers

should be taught bottle feeding, including its medical and economic aspects. This teaching and the dissemination of information related to artificial feeding should be conducted in appropriate areas.

4. The medical and paramedical staffs of institutions and clinics should meet periodically with officials of the infant food industry to discuss problems in common.
5. Measures should be taken to motivate and encourage breast-feeding to continue after the mother leaves the hospital following delivery; this can be done by trained maternal and child health clinic staff during the postnatal follow-up.
6. Research should be done to identify and eliminate the various factors that lead to problems in infant and child feeding.

7. The curricula for medical, nursing, nutrition and midwifery personnel in training should incorporate meaningful and practical aspects of infant feeding and nutrition with emphasis on breast-feeding and weaning foods.

8. Educational activities relevant to the needs of the community and aimed at the public, civic groups and school children should be intensified. The mass media should also be utilized to achieve the aims.

### IV. Proposals to Industry for Action to Promote Desirable Policies and Practices

1. The infant food industry should continue and increase efforts to implement the objectives stated in PAG Statement No. 23.
2. There is need for a cooperative effort on the part of members of infant food industry operating in this region to control advertising so that it will not be likely to discourage breast-feeding.
3. The industry should continue and increase distribution to the medical and health profession and the parents, of educational material on infant nutrition, hygiene, importance of breast-feeding and feeding during weaning.

4. No person should represent a company unless fully trained for his or her job. The training of industry personnel involved in promotion of infant foods should emphasize the importance of breast-feeding, appropriate use of breast milk replacements and appropriate use of weaning foods. The companies should stress the highest ethical standards in their personnel training, advertising, and their contacts with medical and health professions and with the public.

5. Members of industry should cooperate to establish a code of ethical practices covering the relations between their employees and the medical and health professions and the public.

6. Members of industry should cooperate to establish a code of ethical practices in their advertising and promotion.

7. The industry should cooperate in all appropriate ways with governments to make weaning foods available for infants.

8. Members of industry should cooperate to seek to improve labels, instructions and measuring devices for infant foods (e.g. nutritional labelling, feeding tables, scoop design).

9. The recommendations given above that require cooperation within the industry should be accomplished by the participation of the individual companies in regional and/or national industry councils (see below).

#### V. Proposals to Government for Action to Promote Desirable Policies and Practices

1. Government should establish a definite policy on infant and child nutrition and should emphasize the value of breast milk as the most important food source for young infants.

2. Government should take systematic steps to establish criteria for processed infant food products including steps to make suitable foods available as widely as possible to all the vulnerable groups.

3. Government should encourage all firms manufacturing and marketing infant and baby foods to adopt a code of ethical practices in the distribution, sale, advertising and promotion of their products.

4. Government, in consultation with the health and medical professions and industry, should make regulations for the proper labelling of all infant formula and all modified milk for infant feeding that would emphasize that breast-feeding is best and artificial feeding is to be employed only when the mother cannot breast-feed.

5. Government, in consultation with the health and medical professions and industry, should make as a part of food and drug legislation, provision for the safety of all food intended for feeding infants and young children.

6. Government should include nutrition and health education in all educational programs aimed particularly at children and parents.

7. Participation from the mass media should be sought to encourage breast-feeding and supplementary feeding of the vulnerable groups.

8. Government, in consultation with the medical and health profession and industry, should encourage and support the development, production and distribution of nutritious, inexpensive foods that employ local resources and facilities for use in feeding vulnerable groups.

9. Maternal and child health, family planning and nutrition activities should be coordinated.

10. Government should consider prescribing a minimum period of maternity leave. Employers should consider providing special facilities or concessions whereby mothers can be encouraged to breast-feed.

11. Government should collaborate in and support every effort for promoting acceptable procedures for infant and young child feeding.

## VI. Implementing the Proposed Actions

It was agreed at the seminar that better coordination of the activities of all groups concerned with improving infant and young child feeding is most desirable. In this connection, the steps recommended by the industry delegates towards formation of an international industry council comprised of companies that prepare and market infant foods were unanimously endorsed as a useful measure to follow up on the mutual understanding and concern apparent among seminar participants.

An international industry council would be valuable for achieving the objectives of this seminar: that is, to seek practical and realistic methods to implement PAG recommendations such as codes of ethics in advertising and promotion, simplification of mixing instructions, development of weaning foods, framing proposals for nutritionally-desirable legislation, etc. The international industry council would have liaison with the PAG and would have medical and health personnel as

consultants. To pursue the formation of such a council, a steering committee was formed composed of members suggested by the representatives of industry.

Although discussions on a regional basis would be valuable, their effectiveness, it was believed, would be somewhat limited in respect to industry's role.

From now on, informal dialogue at the national level between government, the medical and health professions and industry should be encouraged. Following the establishment of the international industry council, comparable consultations would be formalized at the national level. It is recommended that the Secretariat of the Protein-Calorie Advisory Group be informed of such meetings and their results. It is also recommended that the PAG be requested to suggest appropriate consultants to the national councils.

The PAG will distribute information concerning this seminar and its recommendations through the various channels available to it.

## PAG REGIONAL SEMINAR: OVERCOMING PROBLEMS IN INFANT AND YOUNG CHILD FEEDING PRACTICES\*

### I. Background and Objectives

Malnutrition in infants and young children is a serious problem in all our countries and an important cause of ill health and mortality. Sufficient information on the types of malnutrition encountered and the extent of their prevalence is available in many publications and the proceedings of other conferences. We have more than a fair idea of the complexity of the etiological factors, and we also possess much specific information on how most of these causes operate in the family,

the community and the society to bring about the tragic events we so frequently observe.

From all the published and unpublished information we possess, we can draw the important conclusion that despite the complexity of all the known causative factors, they ultimately act through the mechanism of inadequate and improper feeding. The sole exceptions are infectious diseases and intercurrent illnesses; but even these interfere with feeding in several ways.

The PAG has held two international seminars to consider the infant feeding problems and to

\*Singapore, 25-27 November 1974.

recommend measures to overcome them. The discussions brought out clearly that early discontinuance of breast-feeding by mothers among the lower income groups in urban areas in many developing countries is a powerful factor in infant malnutrition and death. This unfortunate situation is aggravated by many among those who have professional, social and official responsibility for infant and child care, but lack correct information as to the recognized and acceptable forms of feeding, which are also nutritionally sound and economically feasible. As for strategies, previous PAG seminars emphasized that in order to make any impact on the situation programs and plans should be developed and implemented with the involvement of the medical and health professions, the infant food industry and the relevant government agency at the national level. These groups should come together and evolve a continuing collaboration with a cooperative plan of work.

The present seminar is a beginning of this effort. What are its objectives? To begin, it would be helpful to say what they do not include. They do not include an intensive review of problems nor an in-depth analysis of the causes and types of malnutrition and their prevalence nor a search for who or what is responsible for the situation. These are all important subjects and require detailed examination periodically in appropriate forums. In this seminar, the PAG desires that we move into the realm of action on the basis of the knowledge, information and experience we already possess. Thus this seminar has three objectives:

1. To recommend policies and practices suitable for feeding young infants, older infants and young children in our countries. Whatever we recommend should be culturally and socially acceptable, economically feasible, nutritionally sound and based on the background information and experience we already possess. The recommendations naturally should cover the needs and requirements of the different groups in the population;

2. To identify the roles of medical and health professionals, the infant food industry and the government agencies in promoting the policies and practices we have recommended;

3. To devise a permanent machinery to bring about a continuing collaboration of the infant food industry, the medical and health professions, and governments toward implementing the identified roles in each country as well as in the region.

The program of this seminar has been structured to meet those objectives.

## II. Excerpts from Opening Remarks by the Chairman, Thomas Stapleton\*

It is a great honour, but an even greater responsibility, to be chairman of this regional meeting of the Protein-Calorie Advisory Group of the United Nations System.

It is a pleasure to see so many old friends from the different countries of the region present today. I am sure the small number of those of you whom I do not know will soon be friends, too. It is a particular pleasure to welcome such senior representatives from industry.

I am most anxious that at this seminar we do not merely mouth platitudes, but that we actually deal in a realistic manner with any conflicts that there may be between us concerning the routes along which the real problems can best be solved.

The result we all aim for is that every single person in the region will receive adequate nutrition.

I am very conscious of the influences and pressures to which each one of you is subjected. You do not each even have the same primary

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\*Dr. Stapleton is Professor of Child Health, University of Sydney, Australia; Treasurer, International Paediatric Association; and member of the PAG.

responsibilities. Pressures and responsibilities may be related to your profession, your company, your nation, your religion, your ideology and your family. Your starting points are various and depend not only on your own personal life experiences, but on the centuries of history behind you.

I know that each of us is going to speak completely frankly at this meeting. By doing so, nobody is going to offend anybody. Anxiety and fear are promoted by ignorance, not by knowledge or frankness. There may, indeed, be occasions on which a speaker wishes his remarks to be "off the record". This is quite in order and each of us will respect such confidences. When, however, we come to our recommendations, we shall promulgate them so that they may become public.

### III. List of Participants

#### Indonesia

Mr. M. Hermana, Nutrition Research Institute, Bogor.  
 Dr. Yan Mangiwa, Department of Health, Jakarta.  
 Dr. R. Kwari Satjadibrata, Airlangga University, Surabaya.  
 Prof. R. Sutedjo, University of Indonesia, medical school, Jakarta.

#### Malaysia

Prof. S.C.E. Abraham, Government General Hospital, Kuala Lumpur.  
 Miss Lee Nyut Ngor, Ministry of Health, Kuala Lumpur.

#### Philippines

Dr. (Mrs.) Amansia Mangay-Angara, Department of Health, Manila.  
 Prof. Dominiciana Dauis-Lawas, University of Philippines, college of medicine, Manila.  
 Prof. Luis M. Mabilangan, University of Philippines, college of medicine, Manila.  
 Dr. Lourdes M. Sumabat, Department of Health, Manila.

#### Singapore

Dr. D.I. Pakshong, MCH Services, Singapore.  
 Dr. Quek Kai Mew, Ministry of Health, Singapore.  
 Dr. Tan Cheng Lim, Alexandra Hospital, Singapore.  
 Prof. Wong Hock Boon, Outram Road General Hospital, Singapore.

#### Sri Lanka

Dr. S.C.A. Fernando, Ministry of Health, Gampola.  
 Prof. Priyani Soysa, University of Sri Lanka, Colombo.

#### Thailand

Mr. Uthai Pisolyabutra, Ministry of Public Health, Bangkok.  
 Prof. Prasong Tuchinda, Mahidol University, faculty of medicine, Bangkok.  
 Prof. Aree Valyasevi, Ramathibodi Hospital, faculty of medicine, Bangkok.

#### Industry Representatives

Mr. Eladio A. Guevarra, Borden International Philippines, Makati, Rizal, Philippines.  
 Mr. J.M.L. Brunskill, Bristol-Myers, Petaling Jaya, Malaysia.  
 Mr. A. Wulff Hansen, Dumex Ltd., Copenhagen, Denmark.  
 Mr. Sherman Wong, Dumex, Petaling Jaya, Malaysia.  
 Mr. H. Fujii, Meiji Milk Products Co., Ltd., Tokyo, Japan.  
 Dr. Taro Nagasawa, Morinaga Milk Ind. Co., Tokyo, Japan.  
 Dr. H.R. Muller, Nestlé Alimentia S.A., Vevey, Switzerland.  
 Mr. W.A. Bouwes and Mr. J.P.A. Linck, Pacific Milk Industries, Selangor, Malaysia.  
 Dr. Duane Benton, Ross Laboratories, Columbus, Ohio, U.S.A.  
 Dr. Eiichi Furuichi and Mr. Masae Teramura, Snowbrand Milk Products Co. Ltd., Tokyo, Japan.  
 Mr. Norman Green, Wyeth International Ltd., Philadelphia, Pa., U.S.A.

Other Invitees

Dr. Jon E. Rohde, Rockefeller Foundation,  
Jogjakarta, Indonesia.

PAG Members

Prof. Selo Soemardjan and Prof. Thomas  
Stapleton.

PAG Secretariat

Dr. P.S. Venkatachalam, Assistant Secretary.

FAO

Miss Jean McNaughton, Food Policy and

Nutrition Division, Rome, Italy.

WHO

Ms. Ruth Selinus, Nutrition Officer, Kuala  
Lumpur, Malaysia.

Observers

Mr. Anwar Fazal, International Organization  
of Consumers Union, Singapore.

Dr. (Mrs.) Looi Su Hoon, Ministry of Health,  
Singapore.

Mrs. Tan Wei Ling, Ministry of Health,  
Singapore.

## POLICIES AND PRACTICES RECOMMENDED IN FEEDING YOUNG INFANTS (ZERO TO SIX MONTHS) IN COUNTRIES OF THE REGION

by Priyani E. Soysa\*

The value and importance of breast-feeding has acquired a new look in recent years for many reasons. Fashions in infant feeding in some western countries appear to be moving away from the bottle as part of a current trend to be "natural".

More significant is new knowledge of the biochemical value of human milk; notably the nutrient value of cow's milk has been correlated with the growth needs of the calf, and that of human milk has been correlated with the growth needs of the infant. Low levels of methionine in human milk reflect the absence of the enzyme cystathionease in the liver of the preterm infant, showing that there is design or logic in these natural phenomena. The presence of nucleotides in human milk improves the synthesis of proteins. Fatty acids are already split by lipase found in human milk; free fatty acids are important

sources of energy for the young infant. The high content of linoleic acid in human milk can be considered advantageous in the light of the current interest in polyunsaturated fatty acids. Absorption of calcium from human milk is favored, and the presence of lactose is especially useful for brain development in infancy. The good digestibility and low solute load of human milk and the low morbidity and mortality among breast-fed babies stress the value of breast-feeding.

In this region the more practical aspects of breast-feeding are what make us consider it to be the essential lifeline for the baby. It is clean; it is available at home at no cost; it requires no fuel for preparation or warming up; it is readily available in the correct composition.

Its importance to us lies also in the fact that failure to breast-feed is the major cause of marasmus in infancy, which is a condition that pediatricians see all too often in this part of the world. Today in the wake of a world shortage of milk, available human milk is a nutritional

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\*Department of pediatrics, University of Sri Lanka, Colombo. Edited version of a paper (PAG document 1.14/41) for PAG Regional Seminar, Singapore, November 1974.

reserve. For Sri Lanka it means even more: a foreign currency reserve.

#### Preparation for breast-feeding: establishment and maintenance of lactation

Failure to develop the changes in the breast needed for lactation and anatomical factors resulting in failure to produce milk are rare. Antenatal care can reassure mothers that their chances for successful nursing are great.

The adequacy of mother's milk depends on her diet. Reserves are laid down in early pregnancy; an undernourished woman would use them all up before lactation. Thus, there is need for an additional allowance of calories and protein during pregnancy and throughout lactation.

Lactation is initiated by the infant's suckling, which stimulates the anterior pituitary to produce quantities of prolactin, the primary hormone that controls the secretion of milk. Lactation also depends on the "let-down" reflex, in which suckling stimulates the posterior pituitary to produce the hormone oxytocin, which stimulates the smooth muscle in the walls of the milk ducts to permit the flow of milk. Lactation is established about the third day after birth, and there is a rapid increase in the flow of milk by the end of the first week, although it may be delayed until later. Restriction of suckling inhibits lactation. Adherence to a schedule is not the sole criterion for the adequacy of feeds; feeding on demand gives the best results.

There are many emotional aspects of breast-feeding but the mother-child relationship comes foremost. The mother derives the feeling that she is indispensable to her child, and the child derives a feeling of security from being close to the mother. Lactation is successful when the mother is relaxed; the let-down reflex is sensitive to emotional disturbances.

#### Promotion of the concept of breast-feeding

In rural areas breast-feeding is seen as a natural process. There, the habit of breast-feeding a baby in full view of the siblings creates in the young girls a desire to do likewise when they grow up. On the other hand, in urban areas, shyness to feed in public, a Western trait, has certainly influenced young women.

The willingness to breast-feed must be established in mothers before giving birth. If the values of breast-feeding are to be emphasized in the community, the idea must be implanted in girlhood that breast-feeding is part of a woman's biological role. In urban areas, the target for such education should be teenagers, who are the trend-setters. In rural areas education should be aimed with a view towards preventing marasmic diarrhea. In the wake of affluence and technological developments claiming to produce humanized milks, the values of breast-feeding such as availability, cheapness and convenience were rejected. Formula feeding became practicable with the advent of improvements in environmental hygiene. To overcome these rationales, affluent groups should be encouraged to return to breast-feeding because of its benefits to the mother-child relationship and because it fulfills a natural purpose.

The importance of breast-feeding must also be reimplemented in the minds of obstetricians, medical students and midwives who unconsciously sponsor artificial feeding. How often is stilbesterol casually ordered on the least pretext by young house officers to stop lactation?

Few medical workers are aware of the recent biochemical findings in favor of human milk or have any understanding that the many technical problems in breast-feeding are usually surmountable. Further, infant formula manufacturers often court young doctors to recommend their products. Older women should advise their younger protégées to take up breast-feeding and to instruct them in the art.

Common causes of failure to breast-feed

1. Lack of preparation to breast-feed leads to lack of self-confidence even on the part of mothers otherwise motivated to do so. This situation is due in part to midwives and nurses who not only fail to encourage breast-feeding in postnatal wards but also introduce early bottle feeding unnecessarily.
2. An inadequately-nourished mother will produce inadequate amounts of milk. This is especially apparent with the present food crisis and inflation when many mothers are unable to buy sufficient food to meet recommended dietary allowances.
3. Rapidly increasing numbers of women in urban areas require substitutes for breast milk because they are working outside their homes.
4. Mothers have often become anxious over the adequacy of the amount of their breast milk because they can neither see nor easily measure how much is consumed. Overanxiety to supplement breast milk with artificial feedings is due to the inability of mothers to resist advertising claims for products that are readily available, mostly in urban areas. In contrast, the majority of rural women breast-feed successfully.
5. Artificial feeding is a status symbol that influences the attitudes of less privileged women who often follow fashions set by privileged women.
6. Infections reduce lactation, as does anxiety. Tubal ligation done in the immediate postnatal period can lead to anxiety that results in failure of lactation.
7. A feeble or sick baby may fail to suckle. Sometimes mothers are discharged, because of hospital overcrowding, before feeble pre-term babies are fit to go home.

Steps to correct these causes

1. Mothers must be prepared for breast-feeding so that their confidence may be established to successfully lactate in the early lying-in period.
2. Have mothers practice breast-feeding a few hours after birth; discourage overenthusiastic bottle feeding before lactation is established, a practice that habituates an infant more to suckle from the bottle than from the breast.
3. The decision for a young mother to work requires reasoned judgement; all too often the income from her employment is offset by the cost of child care.
4. Babies over 1,800g (4 lbs.) who are gestationally mature do not need to be isolated and can be discharged early with mother. For smaller babies, a breast milk bank would be useful. Such banks are rejected now due to superstition. Special provisions must be planned for lying-in mothers to breast-feed. Although nursing mothers are admitted with their babies to children's hospitals, sufficient facilities are not provided for the mothers' minimum comfort. Future planning of children's hospitals must cater to this need.
5. Nutritional supplementation should be provided for breast-feeding mothers at well baby clinics.
6. The mass media and school hygiene programs should be employed to stress the biological value of human milk.

Alternative infant foods available in Sri Lanka

Milk from several species is available, but milk from cows is the most widely used. It is often diluted; it does not keep well in this climate; and it is seldom recommended. Goat milk is used to a lesser extent. Buffalo milk is not used for infant feeding in Sri Lanka. Condensed milk is produced locally but is sweetened for preservation purposes and thus is not recommended for

infants.

Powdered milks are imported and packed locally in plastic or cardboard packets that cost less than tins but can be stored satisfactorily. Although these foods are subsidized by government through cooperatives equally to rural and urban areas, they are hardly ever consumed in the former but are always in short supply in the latter. The importation of infant milk foods is not restricted, and the demand for these alternatives is increasing. The availability of these products brings up the question whether developing countries should permit the use of brand name products and thus perpetuate the prestige value of some brands. This becomes an important problem when the shipment of a particular brand is delayed.

Several full cream and half cream brand name products are also available in the market.

A quantity of a wheat-soy blend donated by international voluntary agencies is also available; it is packaged locally and distributed at clinics and cooperatives to vulnerable groups.

#### Indications for alternative feeding

1. Maternal diseases: thyrotoxicosis, tuberculosis, heart failure, severe asthma and anemia.
2. Infant deformities that interfere with suckling such as cleft palate.
3. Inadequacy of breast milk.

#### Minimum facilities necessary for successful alternative feeding

1. Plenty of clean water for washing bottles and facilities for boiling them.
2. Supplies of kerosene or firewood are expensive; saw-dust fires are advised.
3. If imported bottles are too expensive,

mineral water bottles are permissible. They can be boiled once a day and stored in a pan or pot covered with a lid.

4. Clean mixing jug and spoon for stirring.

5. Cheap soap and brush (can be homemade from a cleaned coconut husk).

#### Other considerations

Although the higher income groups can afford formula feeding for young infants, it is important to stress to the mothers the value of and need for breast-feeding. The choice of feeding may however be left to them.

For emergencies the preferred feeding in Sri Lanka would be a combination of breast milk and congee (porridge) made of rice, mung beans (*Phaseolus mungo*) and a little milk. This can be distributed at community centers at a specific time of day. The wheat-soy blend presently packaged in Sri Lanka may be considered as another emergency food. It is pre-cooked and needs only boiling water for mixing. Prolonged emergencies due to famines may affect lactation. Then, such mothers should be deemed a priority group to receive special nutritious rations.

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#### DISCUSSION SUMMARY

Mothers the world over want the best for their infants, and breast milk is the best food for all infants up to five or six months. The need for breastmilk substitutes was also noted; not only are they needed in developed countries but also in countries represented at the seminar. The substitutes are especially necessary for those infants who for some reason are unable to receive breast milk or who receive it only in insufficient quantities.

The infant food industry has fulfilled an important role in society by providing breast milk substitutes. However, such substitutes should

be used carefully in the best interests of the infant, mother, family and society.

Failure to breast-feed is not a problem in rural communities at present; it is a serious problem encountered almost entirely in urban areas. Several causative factors operate in the urban setting, some that are obvious and others not so obvious, but all of them work synergistically to the detriment of infant nutrition and health.

Instruction and physical preparation for breast-feeding should begin right from the start of the prenatal period, particularly for primiparas. Since urban mothers deliver in institutions, the motivation to breast-feed can be reinforced effectively by help and guidance in institutional settings. Any difficulties should be corrected by proper advice, sympathetic support and continuous encouragement. The troubles most often encountered are the mothers' worries about success and their shyness to talk. Once established, breast-feeding can be continued without great difficulty for the first five or six months, so long as there is no extraneous interference in the form of contradictory or confusing advice.

Affluent mothers who seek advice on alternative foods for young infant feeding should be clearly informed of the need for breast-

feeding in the early months and its advantages. In any event, mothers who cannot breast-feed should be made aware of the daily cost of feeding various breast milk substitutes and of the possible risks in feeding them. They should also be taught the preparation and feeding of these products and should be continuously supervised. There is no contradiction between the job activities of a woman with a young infant and her ability to nurse her baby. Social support and provision of appropriate facilities will greatly help.

The value of breast-feeding as a birth control measure was mentioned, as was the use of hormone pills soon after delivery, which is a cause of decline in breast milk. Also noted was the growing number of mothers in developed countries who breast-feed in keeping with a trend towards "natural" rather than "artificial" foods and practices.

If milk were designated by the generic term only as a commodity, it would reduce the production cost of breast milk substitutes but would create new problems in that industry would not spend funds for research and development. Other breast milk substitutes based on non-dairy ingredients are difficult to work with in order to make them suitable for young infants, because the technology is too complex and expensive.

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Please note also that PAG Statements and Guidelines are regularly published in the PAG Bulletin as issued or revised. Readers who save and refer to back issues of the Bulletin will have little need to request such documents. To make the PAG Bulletin more useful in this and other respects, an index of Volumes II through IV is provided in this issue. In the future, we shall publish an index annually.

POLICIES AND PRACTICES RECOMMENDED IN FEEDING OLDER INFANTS  
 (SIX TO TWELVE MONTHS) AND YOUNG CHILDREN  
 (TWELVE TO TWENTY-FOUR MONTHS) IN INDONESIA

by R. Sutedjo\*

Biologically, a mother's breast milk production generally starts to decrease when her infant is approximately five months of age; thus supplementary feeding becomes necessary around that time. In fact, at age two months supplementation can already be started once daily (at 11 A.M. in the regimen I recommend) in the form of a 20g biscuit soaked in milk or tea, or in the form of fruits; 50g of either banana, papaya or orange juice. Such a supplement provides approximately 3g protein, 150kcal and small amounts of vitamins A, B<sub>1</sub>, and C. In addition to the small amounts of nutrients it provides, a significant benefit of this early supplementation is that it starts to train the infant to eat solid food.

By age four or five months one of the morning breast-feedings (9 A.M.) is discontinued and is replaced by the first major solid food, i.e., a porridge consisting of 150ml cow's milk, 10g rice flour and 10g cane sugar.

This cooked porridge provides approximately 165kcal, 5g protein (86 per cent animal and 14 per cent vegetable), 210 I.U. vitamin A plus vitamins B<sub>1</sub> and C as well as 136mg calcium, 64mg phosphorus, and 0.3mg iron.

Instead of rice flour, other cereal or legume products can be used, e.g. corn flour, soybean flour, rolled oats so as to change the flavor every day and keep the infant from getting bored.

Thus the time schedule at this age becomes as follows:

- 6 A.M. breast-feeding
- 9 A.M. porridge (milk, rice or other type of flour, sugar)
- 11 A.M. biscuit or fruit
- 1 P.M. breast-feeding
- 4 P.M. breast-feeding
- 7 P.M. breast-feeding
- 10 P.M. breast-feeding

At age five to six months another breast-feeding, preferably the 7 P.M. feeding, can be discarded and replaced by a solid food that is more complex than the porridge. The dish is called nasi tim; nasi means cooked rice, tim means soft-prepared.

The ingredients of nasi tim are as follows:

50g rice grain  
 vegetables (either 10g spinach, 10g tomatoes or 20g carrots)  
either animal protein, e.g.: either 1 egg, chicken liver, finely sliced meat, chicken or fish  
or high quality vegetable protein, e.g.: soybean curd (tahu or taufu) or fermented soybean cake (tempeh)

Ketchup, bouillon or other kinds of sauce can be added for flavoring to make the dish as palatable as possible. It is necessary to vary the ingredients and thus the flavor from day to day in order to keep the infant from losing his appetite through boredom. The proper way to cook the rice is in a double boidler (au bain-marie) in order to soft-prepare it. The mixture should be sieved before being fed by spoon to the infant.

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\*Professor, child health department of the medical school, University of Indonesia, Jakarta. Edited version of paper (PAG document 1.14/44) for PAG Regional Seminar, Singapore, November 1974.

A typical nasi tim contains approximately 8g protein, 150cal, 8960 I.U. vitamin A, small but sufficient amounts of vitamins B<sub>1</sub> and C, 57mg calcium, 165mg phosphorus, and 3.7gm iron.

At age six to seven months a second feeding of nasi tim replaces the 1 P.M. breast-feeding, so that the regimen becomes as follows:

6 A.M.	breast-feeding
9 A.M.	porridge
11 A.M.	fruits or biscuit
1 P.M.	<u>nasi tim</u>
4 P.M.	breast-feeding
5 or 6 P.M.	biscuit or fruit (optional)
7 P.M.	<u>nasi tim</u>
10 P.M.	breast-feeding

This regimen continues until the infant reaches age nine or ten months, at which time total weaning begins. At this age the nasi tim need not be sieved anymore. Properly soft-cooked rice is usually tolerated. Total weaning is then started. (Weaning has actually progressed step-by-step from age five to six months when breast-feeding six times a day is reduced gradually to only three times.)

At age ten months the 4 P.M. breast-feeding is eliminated and replaced by 150ml of milk. Subsequently the 6 A.M. breast-feeding is stopped, and finally the 10 P.M. breast-feeding is eliminated. It is expected that this weaning procedure can be carried out smoothly and unnoticed by the infant.

Imported instant solid infant foods prepared in the Western style are available on the Indonesian market. However, substitutes for the nasi tim are not acceptable to the Indonesian infant. Yet, as a substitute for the 9 A.M. porridge these foods are liked very much by infants of poor as well as rich people.

A locally made porridge in dry powder form in tins and named SNM (S = susu, skim milk; N = nasi, or rice flour; M = minyak, a combination of spray-dried coconut and peanut

oil) is available at a much lower price than Western-style instant baby foods and is also acceptable to the Indonesian infant. Locally-made substitutes for nasi tim, are, however, not yet available.

If the parents can afford to buy milk and provide the infant with properly prepared solid foods, total weaning at age ten months will not be hazardous. If by chance adequate breast milk is still available when the infant is ten months old, continued breast-feeding can certainly be advised. The role of the breast milk must then be considered to be supplementary. This policy should actually be adopted from the moment when solid foods are given three times daily, i.e., from the age of six to seven months on.

We are not of the opinion that breast-feeding should be encouraged to continue as long as possible because the amount of the breast milk generally decreases gradually with the age of the child, and an ignorant mother might think that her breast milk alone is sufficient to nourish her child.

The regimen given above could be continued until the child reaches age one year and even longer with the understanding that the first solid food could at that time be considered to be his breakfast and could be varied with bread, toast, or cake made of peanuts, soybeans or other legumes. The first and second nasi tim would then become the lunch and dinner, respectively, in which case the soft-cooked rice might be replaced by plain rice as consumed by the rest of the family. In fact, the child starts to share the menu of other family members with the exception of highly-spiced dishes.

Breakfast can be made variable, but in most families it consists of cooked rice plus vegetable soup with a piece of meat, fish, egg, liver or soybean cake. The family lunch and dinner usually consists of the same ingredients. However, it is up to the mother to change the flavor every day and to suit the occasion. The richer the family the greater the amount and variety of foods served. After lunch or dinner a dessert

is usually served, consisting of fruits in season, which provide additional calories and vitamins.

Milk could be continued as a drink for the child. The times to drink milk are not rigid or fixed. One-half liter per day given in small amounts between meals is sufficient. Undeniably, this volume of milk adds a considerable amount of complete protein to the diet and helps the child obtain optimal growth provided that the parents can afford to buy the milk over a lengthy period.

A question that remains unsolved is whether supplementary milk should be strongly advised for children older than one year, especially in many developing countries where the buying power is minimal and where milk drinking has been unfamiliar over the course of centuries. There are nations where milk is not drunk and which have been able to achieve socioeconomic, technological and health progress equal to milk-drinking nations. This suggests therefore that priority in developing countries should be given to increasing the production of fish, meat, poultry and legumes so as to meet the need for proteins, which I believe can never be entirely met by milk and milk products.

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#### DISCUSSION SUMMARY

The feeding of young infants poses a great problem in urban areas where primiparous mothers urgently need support and guidance. Nonetheless, the feeding of older infants and young children poses an even greater problem not only in urban families, but also in rural communities. Help and advice is required not only after the mother has had her first child but also whenever she has a baby over age six months to feed. The unavailability of special weaning foods for babies during this period of transition is a contributing factor in this situation.

Mothers who are breast-feeding satisfactorily should be encouraged to continue as long as possible during the later months of infancy but should be made to understand that the breast milk is not sufficient for babies after age five or six months when they should start to receive other nourishing foods. The same is true for those infants who did not receive breast milk during the early months and were brought up on breast milk substitutes.

Gradually increasing quantities of commonly available foods such as cereals, legumes, leafy and non-leafy vegetables, seasonal fruits, and if available, eggs, fish, meats and milk products should form the basis of the diet for older infants. Required will be education of mothers as to the appropriate combinations of foods and their preparation and feeding to infants until they reach age ten or twelve months. From then on, a child can be fed safely from the family diet, provided that a) it is nutritious, b) it includes a combination of the various items indicated above, c) the child is fed from the family pot first, and d) the child receives adequate quantities of the nutritious foods in the menu.

Wherever cow's milk or that of other animals is available, a cup or two can be given per day after it has been boiled and cooled immediately before feeding. If the infant is undernourished or sick, special efforts should be taken to provide extra nourishment in the form of subsidized food, if necessary.

Food taboos, which may be based on social, cultural, religious and at times economic factors, should be investigated and appropriate action must be taken if they are found detrimental to proper child feeding. Nutrition education that is provided in simple, clear style would greatly help.

Emphasized was the need to prepare a list of local foods, including their nutritive value, and a manual containing recipes and daily menus suitable for the use of the local population. Similarly, for the infant food industry

to develop nutritious processed foods to be available using local commodities was underlined. A great variety of such foods may not be necessary, but a few that can be used interchangeably both as weaning food and as nutritious supplements for the vulnerable groups would suffice.

It was felt that existing food processing plants

might not have sufficient reserve capacity to undertake this task. Even if they did, the proposal would require careful examination in collaboration with local authorities. Alternatively, for a region where food habits are similar, production could be undertaken in one country and exported to others in the same region. Also, costs could be reduced by the use of simplified packaging techniques.

## THE ROLE OF THE MEDICAL AND HEALTH PROFESSIONS IN PROMOTING DESIRABLE POLICIES AND PRACTICES

by Wong Hock Boon\*

Human breast milk has evolved over thousands of years to the present and has become the optimal food for the human baby in terms of its value for the infant's survival and potential development. The philosophy behind encouraging breast-feeding is to return to humankind its birthright. To ensure this, both short- and long-term policies are needed and should be implemented as soon as possible.

For the short-term, maternal and child health clinics should actively motivate and teach expectant mothers to breast-feed. In many areas, the staff itself must first be trained. A well-planned, intensive course should be run by knowledgeable pediatricians for all doctors, nurses and midwives in these clinics. The content of such courses may need centralized planning--perhaps under PAG or similar auspices--and should use special teaching methods with appropriate materials, pamphlets and practical demonstrations. Each country should produce a film, which could be shown in all its clinics.

The infant food industry should be discouraged from sending its staff to the clinics. The problem of teaching antenatal mothers how to prepare substitute breast milk feedings and bottle feedings is a ticklish one. Personally, I feel such demonstrations should be discontinued, and special classes of this nature should be given only to those postnatal mothers who have been proved to be unable to breast-feed. To give such instruction in antenatal clinics is to supply the wrong emphasis. The antenatal mothers who have been motivated to breast-feed must be "tagged" in some way and followed up into the obstetric hospital, clinic, home.

This brings us to the delivery area, where again for the short term, obstetricians, nurses and midwives should undergo the same type of training for motivating and teaching mothers to breast-feed. The nurses must encourage all mothers to breast-feed their babies during the initial and crucial period after birth, and all bottle feeding should be banned. Obviously, there will be some legitimate cases where babies will have to be bottle fed, but these will be in the minority. As much as possible, breast milk should be "borrowed" for this purpose. All such bottle feedings should be carried on out of sight in a restricted area to give the impression

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Edited version of paper (PAG document  
1.14/39) for PAG Regional Seminar,  
Singapore, 1974.

that they are the exception rather than the rule. Infant food industry personnel should not visit the obstetric area to conduct advertising campaigns.

The postnatal period should be followed up by the staff of maternal and child health clinics as scrupulously as is practicable, and encouragement should be given to mothers who successfully breast-feed their babies. This continual motivation, praise and encouragement is especially important for the primipara, and the result will be that successive babies will be more easily breast-fed. Such measures may be sufficient for non-working mothers, but for those who work, the clinic staff will have to give advice on how to continue breast-feeding for as long and as often as possible before weaning. It is these mothers to whom supplementary artificial feeding may have to be taught. However, it is not enough recognized that the working mother can express and then "bank" her breast milk in a refrigerator for subsequent bottle feeding after warming. Private and government employers should provide such facilities for those mothers who wish to avail themselves of this option.

Responsibility for postnatal education for breast-feeding will fall heavily on the staffs of maternal and child health clinics. Here, another type of course may have to be instituted for instructing the staff. Research into the human problems arising from conditions such as the lack of an extended family system, lack of domestic help, poor working conditions for mothers, and so forth, may have to be carried out in each country to delineate and solve the problems. Not enough research has been done with regard to how these problems affect the postnatal period. Instruction on weaning to solid foods will also have to be carried out. Seminars with trade unions, management, government departments, etc. may be needed in order to identify problems and their solutions.

The long-term policies are not so readily

differentiated from the short-term; often they will merge. There are several areas where long-term policies can be implemented or at least begun. I believe it is time that the human breasts were desexualized. The fashion business is as much responsible as the artificial feeding business for contributing to the decline of breast-feeding. Men play a major role in this respect because the fashion business encourages them to appreciate the female breast more as a sex object than as an essential organ for infant feeding. Women cannot achieve equality with men as long as they regard their breasts primarily as objects of adult male fixation. False modesty in exposure of the breasts for infant feeding has resulted from social pressures and not from genetic evolution.

The prevailing attitude may take a generation to reverse, but things must get started now by incorporating infant feeding into the formal education of children. Hygiene books for schoolchildren as written today stress cow's milk as an essential food for babies and children. This is copied from developed countries. Breast-feeding must be introduced into courses in hygiene, biology, and nature study. Topics such as how young mammals are fed by their mothers and the evolutionary modification of the milk of a species to meet its needs can lead schoolchildren in a natural manner to learn about the human breast and breast milk. Much is taught about the intestines and how food moves along them and is absorbed and excreted; nothing is taught about the human breast, which can provide some of that food. Both boys and girls should learn about these things.

Schools of nursing and midwifery should examine their curricula carefully; breast-feeding education should form a major part of the training. It goes without saying that many medical schools must rethink their teaching programs, too. Including the topic of breast-feeding in formal courses is necessary but not sufficient; attention to a mother's breast-feeding or her failure to do so should become part of the routine practical clinical

instruction of all medical students and should be emphasized by their teachers. This is best done in pediatric and obstetric departments. It is not sufficient to teach medical students to merely ask as part of the routine history-taking what is the mode of infant feeding of a child patient; comment and analysis are needed as well. All pediatric and obstetric teachers should emphasize this. The teaching of nurses, midwives and medical students should stress the ready application of the basic principles of breast-feeding to their patients. It should de-emphasize the more esoteric aspects of the subject, which are akin to organ transplantation in terms of their remote applicability to everyday clinical problems.

Forums and seminars should be organized for the layman with the assistance of the mass media. Pediatricians, obstetricians and health workers should keep sound infant feeding policies alive in all segments of the population; ministries of health of all countries should do the same. I would propose that international health bodies such as the WHO boldly proclaim an "International Breast-Feeding Year" or similar activities. The formation of organizations of breast-feeding mothers akin to the La Leche League would be useful in the more urbanized societies. With regard to the infant food industry, the ministry of health of each country should form a committee made up of medical personnel on the one hand and industry representatives on the other; they would agree upon certain common objectives, such as ethics in advertising, which would be binding on all the companies, voluntarily if possible, legislatively if not. Although it is true that the infant food industry is in business for profit, it is not true that the profits are entirely at the expense of the human race. There will always be a market for infant formulas, but it must not be as a monopoly; rather, they should be sold as a genuine substitute for breast milk under the proper circumstances.

Finally, I would like to outline how the depart-

ment of pediatrics of the University of Singapore tackled the problem of declining breast-feeding. From 1951 to 1971, the department monitored the incidence of breast-feeding in Singapore. In 1971, only 28 per cent of the higher and 51 per cent of the lower socioeconomic groups initiated breast-feeding. In that year, the department started a campaign aimed at short-term objectives. It organized forums; it enlisted the assistance of the mass media; it circulated booklets free of charge in English and Chinese explaining the problem to antenatal and postnatal mothers, doctors and laymen alike; and it strengthened breast-feeding measures in the maternal and child health clinics, obstetric hospitals, and nursing and medical schools. Early in 1974, after three years of concerted effort, another assessment of the situation was made. The proportion of mothers initiating breast-feeding in the higher socioeconomic groups had risen to 63 per cent in 1974 and among the lower groups it had risen to 75 per cent.

In the latter groups, two maternity wards were compared in a prospective study. In one ward breast-feeding was actively encouraged by nurses and midwives, with no infant formula provided by the hospital; in the other ward, mothers were left to their own devices, and a powdered infant-feeding formula was provided by the hospital to those mothers who requested artificial feeding. In the first ward, 72 per cent of the mothers initiated breast-feeding, while in the other, only 47 per cent breast-fed their babies.

There is no doubt that breast-feeding campaigns, if strenuously conducted, can be successful.

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#### DISCUSSION SUMMARY

A large share of the blame for the present situation in infant feeding lies with the medical and health professions. The medical and health training at every level is not geared to the needs

of the local people but remains simply a copy of that given in highly industrialized, affluent countries. Also, aggressive advertising campaigns and the stiff competition among baby food companies have affected young doctors and ancillary health personnel, who are vulnerable to incorrect information regarding infant feeding.

Medical students, general practitioners, pediatricians and the staff in the health centers should first be convinced that breast milk is the best food for infants; they, in turn, can convince the mothers.

Several groups require reorientation; they are: the entire cadre of medical and health personnel and their auxilliaries; the marketing officials and the sales staff of the baby food companies; the key representatives of the important pressure groups (e.g., women's associations, consumer groups and mass media representatives); school and college students; and the general public, including the mothers-to-be.

Formal courses in infant feeding should be taught by knowledgeable, experienced teachers using specially-prepared educational materials. History-taking in pediatric wards should not stop with finding out whether a baby was breast-fed or not. Deeper probes are needed in order to understand why particular practices are adopted. All public health activities in urban areas should include a breast-feeding campaign and those in rural areas should be broad-based and also include a campaign for home-made nourishing foods.

Medical and health educators and administrators should meet periodically to review applicable teaching programs in order to indicate the proper various aspects of feeding infants and young children. Nurseries, clinics and lying-in-wards of hospitals should institute

procedures that promote acceptable health and nutritional practices recommended by the profession. For example, whenever bottle feeding is necessary it should not be practiced indiscriminately without regard to locale, but should be treated as a special procedure to be permitted only in specific areas; husbands should be invited whenever possible to visit antenatal clinics with their pregnant wives to be educated on breast-feeding and its advantages; forums and seminars should be conducted for young doctors, health administrators, health auxilliaries, lay people, baby food company representatives, etc. on the modern concepts of infant and young child feeding applicable to the country; to prohibit the entry into the hospital of mothercraft nurses employed by infant food companies on a uniform basis, all baby food advertisements in medical journals should be reviewed and those that are incorrect should be rejected, etc.

Mothers who want to work should be encouraged to do so provided that the work chosen is appropriate from the point of view of maternal and infant health. The mother should be explained the cost, economics, dangers and advantages of feeding breast milk substitutes and then be allowed to make her own choice.

Different views were expressed regarding the value and the dangers of using "banked" breast milk, and it was felt that more information is required in this practice.

The need for cooperation between the medical and health professions and the infant food companies for fostering recommended policies and practices for child feeding was stressed. Briefly mentioned were FAO plans to launch research projects in two or three countries, aimed at reversing the declining trend of breast-feeding; it will be undertaken in collaboration with WHO, the United Nations, and bilateral agencies.

**THE ROLE OF THE INFANT FOOD INDUSTRY IN PROMOTING DESIRABLE  
POLICIES AND PRACTICES IN FEEDING OF INFANTS AND CHILDREN**

by Duane A. Benton\*

The origin of the infant formula industry was in the concern for the health and nutrition of the infant who could not be fed at the breast. Throughout its history the industry has worked closely with the health professions to provide both better feeding and better care for infants and small children.

The companies represented at this meeting, I assure you, have been highly responsive to infant feeding needs in their home countries. The need and desire for the companies' products now have been transferred from their countries of origin to throughout the world. It has been realized that the promotional methods, labelling and instructions for use of the products in addition to many other aspects of their commerce, must be adapted to each area of the world. Each company in the past has attempted to adapt its efforts on an independent basis while taking note of the actions of its competitors.

Pediatricians throughout the world have become highly concerned about the nutrition of infants and small children in developing countries. In a series of meetings sponsored by the Protein-Calorie Advisory Group, the industry has been asked to direct its efforts toward solutions of these nutritional problems. At the most recent of these meetings held at United Nations headquarters in New York City, it was suggested that the infant food industry could cooperate in regional or national industry councils and could make effective efforts in concert.

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\*Director of nutritional research, Ross Laboratories, a division of Abbott Laboratories, Columbus, Ohio, U.S.A. Edited version of paper (PAG document 1.14/43) for PAG Regional Seminar, Singapore, November 1974.

The members of the industry represented here are interested in directing their promotional efforts to the solutions of nutritional problems of infants and children. Many of the companies have expressed willingness to develop cooperation within the industry toward the ends that have been outlined in previous PAG-sponsored meetings.

The infant food industry has an important role to play in each country and it will make an even greater contribution if the objectives of this meeting are achieved. Some deceptively simple solutions may be proposed in the form of regulations that may effectively bar the sales of products, eliminate profits from such sales or effectively eliminate competition between companies. Groups now active in the world are making such proposals. In the long run such regulations would defeat the admirable objectives set for this meeting. If industry is without the means to sell its products or realize a profit, it cannot make a contribution to infant and child nutrition. Competition between companies, when properly channeled, is the impetus for improvement of products. This competition must be preserved.

There are three major areas where immediate corrective steps are needed in the feeding of infants and small children. I wish to explore how the industry, cooperating through an industry council, can improve the serious conditions that exist for some babies.

1. Replacement of breast-feeding where the mother is inadequately trained and lacks resources for artificial feeding.

Each of us present at this meeting accepts that breast-feeding is the better and safer means to feed an infant. Formula feeding can be hazardous when the mother does not appreciate the

principles of sanitation or lacks the resources to prepare a sanitary feeding. All who advise mothers on infant feeding must be made aware of this fact. There should be a reduction in the advertising that is intended to influence mothers to inappropriately undertake bottle feeding. Company personnel who are in contact with mothers must be trained to encourage breast-feeding wherever possible.

Most companies have been making such efforts. Much more needs to be done; it can be done more effectively when the companies cooperate among themselves and with the health professionals.

## 2. Errors in the use of infant formula

Infant formula, when fed at too great or too low concentrations, can have serious consequences for the infant. Errors often result from the mothers' poor understanding of the directions for use of formulas. Some mothers have poor comprehension of written instructions or are illiterate. In other cases, mothers may receive from doctors or clinics instructions that are not appropriate because the products or product forms they actually purchase and use are different from those that were recommended.

Cooperation among members of the industry to prepare clean and simple product instructions is essential. Directions should differ as little as possible from product to product. Thus directions for use, whether appearing on the can or received in demonstrations at the clinic would not be conflicting.

Certain types of formula preparations require more complex procedures for use than are necessary for others. The industry, cooperating through a council, should be able to work out common series of directions for each type of formula that is marketed. There should be an easily identified mark on the can to distinguish each type of formula.

Medical authorities should work closely with

the industry to determine the most appropriate directions for product use. They should not differ from company to company, because that will only serve to confuse parents. This area is not appropriate for competition between companies.

The other common cause of overdilution of formula is inadequate funds available for feeding the baby; the mother stretches out the formula by using less formula and more water. Some families, where breast-feeding is impossible, will also lack the money to pay for formula. Welfare or charitable support will be necessary to feed such children until they are old enough to take less expensive foods.

The industry should make known to the customer and those advising mothers how long the contents of one can should last when feeding infants of various ages or weights. This information could appear on the label and on literature supplied to doctors, nurses and clinics. When the mother knows the cost of a can, she should be able to estimate the amount of money necessary to feed the infant on such a product.

Abbott Laboratories has prepared and is distributing to its employees throughout the world a statement entitled "International Code of Marketing Ethics With Reference to Infant Feeding". The code appears as an appendix to this paper. We believe that employees following this code will minimize the use of our infant formulas by those who cannot use them effectively.

We know that other companies are developing similar codes that will serve the same purpose. It would be more effective if the whole industry were to develop a single code of ethics addressing these same issues. A code of ethics should be drafted by companies cooperating in an industry council.

The medical community and public health authorities in the region should be consulted by the drafting group to ensure that each of

the problem areas receives adequate attention. It is important that individuals familiar with all the products on the market and how they can properly be sold should draft standards that the industry can voluntarily accept and follow. This would ensure that the industry has the freedom it needs to promote its products to the appropriate customers, and would permit it to follow at the same time the highest possible ethical standards in its efforts. Those in the infant health field should meet with industry representatives to discuss how the code of ethics would meet all the needs in the area. Any misunderstanding should be worked out to the satisfaction of all concerned.

If the code is understood and accepted both by industry and the medical community as a workable solution to these important problems, then we can expect good compliance with the standards. Any company or individual found in violation of the code would expect considerable pressure to be exerted both by industry and the medical community.

### **3. Inadequate feeding after weaning**

By weaning I mean that time at which milk is no longer the primary food for the infant or child. Many children are adequately nourished either at the breast or with artificial milk feedings but are changed to inadequate diets at weaning.

The industry can and should make available weaning foods meeting the nutritional standards set forth by the PAG (PAG Guideline No. 8, Protein-rich mixtures for use as weaning foods). The promotional capabilities of the industry are needed to popularize protein-rich foods as supplemental feedings during the weaning period.

These products and their proper use are very different from those of infant formula. Too often parents spend their money on an infant formula when a high-protein weaning food would be of greater value to their infant or child. Industry should inform the public

and the health care professions of the different roles infant formulas (breastmilk substitutes) and high-protein weaning foods play in infant feeding.

The industry faces the same problem with promotion of weaning foods as it faces with that of infant formulas. Many who need these products will not be able to afford them. The industry should use as ingredients those that are as low-priced as practical to make acceptable products. These products must nevertheless be industrially processed, packaged and marketed, and the costs of these operations will be significant; we all realize that costs are rising daily.

Many families that need high-protein weaning foods are not able to afford them, but they are able to prepare satisfactory weaning foods from raw commodities. The promotion by industry of its weaning food products must not discourage the use of homemade weaning food mixtures by those that cannot afford the more expensive products.

This situation also calls for a code of ethics in the industry for the marketing of weaning foods. Each company would promote the need for appropriate weaning foods that meet the PAG standards. Companies would promote the advantages of their products such as convenience and taste, if appropriate. All would agree not to downgrade the nutritional value of mixtures of acceptable commodities that can be prepared at home for the same purpose. If at the same time health care services promoted the use of homemade weaning foods, there should be an improvement of infant feeding at all levels of society and the two efforts would complement each other. This would be another important task for an industry council.

### Summary

The infant food industry is interested in using even more effectively its promotional abilities to improve the nutrition of infants and children. Although much is accomplished by unilateral actions of the companies, some roles would best

be served by the companies cooperating in an industry council. Such a council must not stifle healthy competition between the companies of the industry. It should identify those areas of competition which may be dangerous and should discourage the member companies from pursuing them. It should identify programs through which companies acting independently or within the collaboration of the council could better the nutrition of infants and children in the region.

Health care professionals and government officials must work closely with the industry group to make the activities of the council appropriate to the needs of the population at the regional and national levels.

#### APPENDIX:

##### International code of marketing ethics with reference to infant feeding, by Ross Laboratories division of Abbot Laboratories

Because good nutrition is an essential consideration in proper health care, we believe that supervision of the infant's diet should be the responsibility of medical and paramedical personnel whose training, experience and understanding of local needs best qualify them to provide this guidance. We attempt to conduct our business in a manner so as to become an adjunct to local health personnel, supporting their efforts through the provision of appropriate products and services. We further believe that this alliance is especially important in developing countries, where delivery of primary health care to major segments of the population is complicated by unfavorable living conditions. Within this context we are keenly aware of the responsibilities of Ross for making a positive contribution to the health and well being of infants in developing countries.

We set forth below guidelines for ethical behavior through which we fulfill these responsibilities.

1. We believe that breast milk of healthy, well-nourished mothers is the best feeding for infants up to six to nine months of age. We believe that mothers in general--and mothers in the lower income and non-money sectors of the economy in particular--should be encouraged to feed their infants at the breast as long as quantity and quality of milk remain minimally adequate.
2. We believe our products have a valid place in the economy of developing countries and we want to restrict their use to that place--infants of affluent parents when breast-feeding is not chosen, or of working mothers who cannot breast-feed because of separation from their infants, and of mothers who cannot breast-feed for any other reason. Perhaps some form of public assistance is the best way to aid mothers who can neither breast-feed nor afford a suitable replacement.
3. For those infants who cannot be fed at the breast or who need supplemental nutrition, we offer Similac\* Infant Formulas, which are patterned as closely after the nutritional qualities of human milk as current knowledge and technology permit. In presenting these products to the medical and paramedical professions, our goal is to promote awareness and acceptance of physiologic nutrition as the most desirable alternative when breast-feeding is not available.
4. We wish to cooperate in every way with local health authorities in preventing misuse of our products because of poverty, ignorance or lack of proper hygienic conditions. And we do not encourage use of our products where private purchase would impose a financial hardship on the family, or where inadequate facilities for preparation constitute a hazard to infant health.
5. Our product label will carry a statement

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\*Registered trade mark; mention of commercial products is not intended to imply specific recommendation by the PAG.

that breast milk is the preferred feeding for young infants, and a warning that proper proportions in mixing formula are necessary and that overdiluted formula may not provide adequate nutrition for the infant.

6. We work with professional and governmental agencies, and industry to standardize instructions for mixing all powdered products, i.e., one scoop (provided in tin of product) to the same quantity of water for each powder product, each scoop individually designed to provide the proper caloric density set by the manufacturer for his product. Such standardization should facilitate educational efforts of public health personnel to create parental awareness of proper mixing of formula.

7. We assist in health education of mothers through appropriate media to a) promote good nutrition; b) encourage breast-feeding; c) improve infant and child care; d) improve sanitation; e) stress proper preparation of infant formula.

8. We represent accurately the cost of proper infant feeding so that professional personnel can better advise mothers according to their economic status.

9. We resist the practices of using direct advertising and offering special inducements to encourage mothers to act independently of professional advice in the care and feeding of their infants. We prefer to direct our resources toward extending the coverage and increasing the effectiveness of qualified local health personnel. Further, we believe that no communication to the general public should encroach in any way on the responsibility of health care professionals to provide guidance as their judgment and experience dictate.

10. Our advertising is directed to medical, paramedical and other professionals (physicians, midwives, nurses, nutritionists, etc.) and seeks to provide better understanding of the proper role for our products, of their

proper preparation, and of our willingness to be of assistance in their practice.

11. Whenever possible, we choose as our representatives experienced paramedical personnel who understand local needs. They are thoroughly taught the knowledge and application of our products, the value of breast-feeding, and the social pressures that lead to unwise purchases and practices by those who cannot afford to buy infant formula. They are schooled to perform their duties in a professional manner and with integrity. Deception and other unethical practices are expressly forbidden.

12. These representatives are reimbursed through adequate salary, with monetary incentive given only for true service rendered to the customer and not directly derived from measurement of sales impact. Their functions are to develop product understanding, to render services that facilitate application of our products, and to make available other health care aids, without attempt to incur obligation for services.

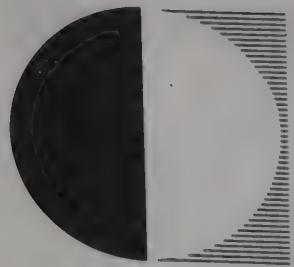
13. The activities of the representatives are coordinated with those of professionals responsible for infant and mother care. We want them, in concert with clinic personnel, to furnish genuine mothercraft outreach services where practical, in support of instructions and counsel received in clinic. In this way our representatives can greatly increase the numbers of mothers and infants receiving good care, and extend the range of care to include many for whom clinics are not readily available.

14. We want medical and governmental health professionals to advise industry on training representatives and establishing the range of their mothercraft activities.

15. We welcome critical review of these guidelines by all concerned with the health of infants. We want suggestions for their extension, elaboration, modification.

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(Remainder of this paper, the discussion summary, appears immediately following the PAG Bulletin Index.)



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(This is a continuation of the paper immediately preceding the PAG Bulletin Index.)

## DISCUSSION SUMMARY

The members of the infant food industry should come together to determine the role they will jointly play in the important task of correcting malnutrition in infants and young children. There are several areas where agreement is possible without stifling competition. These areas must be defined, discussed and worked out into a unified and responsible approach to solve the problem.

It was agreed that no product should be promoted for feeding young infants at the expense of breast milk. At the same time the infant food industry should remain viable, and its

individual members should maintain their competitive outlook along well-defined, acceptable and ethical lines.

The proposal of the industry representatives to establish an international industry council and other regional or national councils to cooperate and develop a code of ethics and a set of common activities was welcomed. Several areas for constructive action were enumerated. Such cooperation is an essential prelude to cooperation of the industry with other interested groups such as the medical and health professions, local authorities and others.

## THE ROLE OF THE PHILIPPINE GOVERNMENT IN PROMOTING DESIRABLE POLICIES AND PRACTICES FOR INFANT AND YOUNG CHILD FEEDING

by Amansia Mangay-Angara\*

### Nutrition status of the population

Regional nutrition surveys conducted in the Philippines by the Food and Nutrition Research Center (FNRC) of the National Science Development Board (NSDB) indicate that despite apparent sufficiency of supplies of some foods, the average Filipino diet lacks calories and protein as well as other nutrients including Vitamin A and iron.

Malnutrition among infants and young children has been reported in various studies. One study shows that three out of four infants are completely breast-fed during the first six months of life. Weaning takes place at various

stages with age three years the outer limit; in general, babies are weaned from the breast between twelve to eighteen months. The cumulative percentages of the termination of breast-feeding as observed in this study are: three months, 8.2 per cent; six months, 11.9 per cent; nine months, 22.3 per cent; twelve months, 45.0 per cent; fifteen months, 71.8 per cent and eighteen months and over, 91.2 per cent.

The report of a study of 589 infants and preschool children in a rural community 98 km. from Manila indicated that the dietary intakes of children below one year are consistently low in all nutrients, notably for protective food elements: calories, protein, iron and vitamin A. This finding, however, was qualified by the fact that no accurate measure of the breast milk was taken; breast milk constitutes a substantial portion of the infant's diet up to age twelve months. This study also showed that during the first four months of life, the height

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and weight curves of babies compare favorably with their opposite numbers from the middle class in Manila and with babies of the same age from wealthier countries. After age four months however, the growth of rural babies slows down. Clinical and laboratory findings pointed to anemia, deficiencies in vitamins A and B, and low blood protein. Protein-calorie deficiency was found in the older children. Application of Gomez's classification revealed that second and third degree malnutrition are prevalent in children age two to six years. It was further revealed that the intakes of all nutrients are below recommended levels in all age groups.

The findings of the FNRC survey indicate that only 28 per cent of children age one to six years have weights within normal limits. The remainder were found to have various degrees of malnutrition.

Although the above review is not comprehensive, the findings suggest high prevalence of malnutrition, particularly among infants and young children. In the younger segment of the population, the causes have been ascribed to several factors, including ignorance, apathy, bad food practices, uncontrolled fertility and overall poverty.

#### National organization of nutrition activities

Many agencies in the country are engaged in nutrition activities. From the government sector, six executive departments (agriculture, natural resources, education and culture, health, social welfare and local government, and community development) and the National Science Development Board (NSDB) are actively involved. The non-government sector includes voluntary, religious and other private agencies, such as the Philippine National Red Cross, the Nutrition Foundation of the Philippines, the Catholic Relief Agencies and the National Council of Churches. External agencies also assist; they include bilateral and international ones such as USAID, FAO, UNICEF and WHO.

In 1971 the President of the Philippines created, under executive order, the National Food and Agriculture Council (NFAC), which was given responsibility for coordinating all nutrition programs in the country. The council is headed by the secretary of agriculture and membership includes heads of executive departments. Other agencies represented in the council are the NSDB and some voluntary nutrition organizations and bilateral agencies. The NFAC has a policy committee on nutrition where recommendations are translated into appropriate programs by each of the participating departments or organizations. Mechanisms are provided for interagency consultation in program development, implementation and evaluation. At the operational level, provincial, municipal and barrio nutrition committees have been established with the participation of the appropriate staff from the national agencies as well as from local organizations and groups interested in nutrition. Programs are monitored by task forces from the central level of the NFAC.

To strengthen further the national organization and operation of nutrition activities, the Nutrition Act of the Philippines was promulgated in July 1974. The decree created the National Nutrition Council which is directly responsible to the President, with the following functions: formulation of an integrated national program on nutrition with responsibility to oversee its implementation as a concerted effort of participating government agencies and instrumentalities as well as of the private sector; coordination of the policies and programs of government agencies and instrumentalities responsible for the execution of nutrition laws, policies and regulations; coordination of the release of public funds for nutrition as well as of all requests by government agencies for loans and grants for nutrition activities; authority to call on any government agency or instrumentality for assistance in nutrition efforts, as may be indicated.

Place of infant and child nutrition in the Government food and nutrition policy

The Nutrition Act of the Philippines contains the following statements:

"...malnutrition retards mental and physical development of our children, weakens their resistance to infections resulting in unnecessary loss of lives through high infant and child mortality..."

"...infants and young children, pregnant women and nursing mothers are most vulnerable to malnutrition."

"...the nutrition program, being concerned with human resource development, is a vital and integral part of social reform and economic development."

"The Government of the Philippines hereby declares that nutrition is now a priority of the government to be implemented by all branches of the government in an integrated fashion."

In a set of policy directions subsequently adopted by the National Nutrition Council for the Philippine Nutrition Program, priority is given to the improvement of the nutritional status of the vulnerable groups of the population, particularly to those in the low income bracket and gives infants and preschool children top priority. Statements in the policy directions include the following:

"Health protection, care, prevention and rehabilitation of the vulnerable age groups shall be of priority concern. This shall include enrichment or fortification of suitable food within reasonable costs."

"Greater priority shall be given to the diagnosis and treatment of malnutrition;"  
 "Nutrition rehabilitation wards shall be established in hospitals in all [administrative] regions of the country... [to provide] training sites for personnel... in the diagnosis and

treatment of malnutrition and to promote research on malnutrition."

"Nutrition education... shall be designed to stimulate demands for and encourage maximum utilization of nutritious and indigenous foods."

"...the Government shall provide assistance and incentives for increased food production, improved processing, efficient marketing, distribution and storage. Supplementary feeding programs shall be based primarily on traditional foods."

"Recognizing that the present population growth largely negates efforts to improve nutritional status and/or food supply, effective [coordination] of efforts shall be achieved by those engaged in both family planning and nutrition activities."

"An integrated, focused and strengthened food and nutrition research program must accompany all developments envisioned to bring about better nutrition. Applied, as well as basic research in nutrition and related fields with emphasis on the former shall be encouraged."

Support for development of new foods using local supplies

Although investigations on the uses of indigenous food supplies had been ongoing efforts of the universities and research institutions, they have been further stimulated and better coordinated since the NFAC was established.

In a workshop on indigenous foods sponsored by NFAC with the participation of government personnel and the private sector, recommendations were made: a) to stretch meat supplies with meat analogs and extenders and b) to develop and institute immediate production of food formulations for feeding programs, using as a calorie base any of a mixture of the flours of rice, corn, cassava or banana and as a protein base any or a mixture of the flours of coconut, legumes, or fish.

Nutrition research and other development activities in the country stress the importance of protein in the diet. For example the Bureau of Public Schools requires that 60 per cent of school gardens should be planted with protein-rich foods. Steps are also being taken to develop satisfactory substitutes for the imported corn-soy-skim milk combination with a formulation of mung beans (Phaseolus mungo), coconut and dry skim milk.

The FNRC is studying formulations for the weanling and the preschool child using flours of coconut, mung beans and shrimp, fish protein concentrates as well as rice and cassava flours. Two formulations that the FNRC has developed are MCM (mung-coconut-skim milk) and MRCF (mung-rice-coconut-fish protein concentrate) which respectively contain 24.9 and 23.9 per cent protein. These formulations, however, need fortification with vitamin A, riboflavin, calcium and iron.

Local legumes are being promoted as raw materials for the formulation of low-cost protein foods. One of these is the rice bean or tapilan (Phaseolus calcaratus); methods for its dehulling are being improved so as to make it better-fitted for a cereal-legume formulation for child feeding.

The department of home technology of the college of agriculture of the University of the Philippines has investigated traditional sources of protein from indigenous foods for the consumption of weanlings and young children. In the studies, seven types of legumes were combined with carbohydrate products; a report was published giving the calorie and protein values of the formulations and their adequacy with respect to recommended daily allowances.

The food products resulting from the above studies need further field testing for proper evaluation; more consideration is necessary in order to achieve more economical means of production and to promote their wider use. Meanwhile, limited amounts of these formu-

lations are being manufactured on a limited scale by small companies with government encouragement.

Desirability of determining and legislating procedures for advertising, labelling, marketing and sale of products for infant and young child feeding

There is already a body of laws and regulations with broader coverage, which have direct implications on food products for infants and young children.

Fortification of milled rice for sale to the public is required by legislation. The details of implementing this law are governed by an administrative order issued by the Secretary of Health that requires the addition of specific amounts of thiamine, niacin and iron to milled rice. Enforcement of this law is under temporary suspension for logistic and economic reasons. The safety of foods, drugs and cosmetics is covered by other legislation, which seeks to ensure quality and regulate production, sale and traffic. Provisions against misbranding and adulteration of products are applicable to infant and child foods. Standards to ensure the quality of milk and milk products come within the scope of the Secretary of Health, by administrative order.

To promote higher production of rice and corn to meet food requirements of the rapidly increasing population, a presidential decree amended an existing law to permit non-Filipinos and foreign enterprises to produce, distribute and use these cereals as raw materials in the manufacture or processing of finished products. This decree largely removes the constraints that have inhibited foreign enterprises to engage in the development and production of suitable foods for infants and young children in the Philippines. An increasing number of local and foreign leaders in the food industry are already taking steps towards producing foods for infants and young children.

A proposal for a code of practice in the manufacture,

distribution and sale of food products for the young has been submitted and contains the following:

1. Manufacturers and distributors agree that they have a responsibility to stress in all advertising and promotional materials directed at mothers and prospective mothers the intrinsic superiority of breast-feeding the first months of life and to recommend that consumers consult their physicians or appropriate medical services for advice on infant care and nutrition.
2. Manufacturers and distributors should not mislead consumers by: exaggerated claims of product quality or efficiency; quoting nutritional indications or benefits without supporting evidence or justification; publishing endorsements or recommendations with respect to the nutritional qualities of a product by unqualified persons; deceiving statements as to the qualifications of the manufacturer, distributor or their advisers; using the term "scientific adviser" if such a term is unjustified owing to lack of appropriate academic qualification; and describing promotional personnel as "nurses", "midwives" or "nutritionists" if such personnel do not possess recognized qualifications to justify such a title.

Collaborative efforts between the medical and health professions and the food industry for the promotion of accepted procedures for infant and young child feeding

Mutual interest facilitates collaborative efforts. The health profession is always on the alert to acquaint itself with food products needed in daily practice. The products for infants and young children will find widest acceptance and distribution only when they are endorsed by the health profession, particularly by doctors. When new products are introduced and when improvements are made, contacts take place in the clinics, health centers, and hospitals. Further, the larger ethical industries are able to offer better facilities for collaboration, e.g. field testing of new food

products or investigations to improve their use.

Larger industries can provide facilities that amply meet professional requirements for the following: testing of feeding formulas, development of standards, preparation and technical review of audio-visual aids aimed at special audiences (rural population, mothers, the health professions). Opportunities offer themselves for further collaboration such as the convening of scientific meetings or workshops dealing with particular food products or certain procedures connected with their use. For example, in the Philippines, the Pediatric Society, in collaboration with a food company (Filipro) will conduct a study on the effects of metrication on feeding formulas and will work out means for meeting the changeover to the metric system including the adaptation of measurement devices employed by food industries.

The health professions are able to participate actively not only in application and use of food products for the young in the field, but also in the formulation of policies and procedures that will have mutual impact. This is made possible by including members of the professions on nutrition boards and bodies such as the Nutrition Council of the Philippines.

International agencies such as WHO and UNICEF also exercise positive roles. UNICEF, as the international agency that procures supplies in the area of health, is able to make contacts with producers, specifies requirements and is able to institute acceptable standards for purchases, making use of the technical support of other nutrition-related agencies such as FAO and WHO. WHO, through its statutory bodies and expert groups, is able to formulate policies and standards on food products for the infant and the young child, and is able to support investigations for improving products and is thus able to set up norms and procedures that enable the food industry to formulate and produce products for wider use.

## DISCUSSION SUMMARY

The PAG's recommendations to governments in PAG Statement No. 23 were enumerated and recognized as a good starting point for action. Government should recognize infant and young child nutrition as an important element in national food and nutrition policy and take all necessary steps to promote and maintain proper infant and child feeding in the country. These steps should include appropriate legislation, subsidy programs

and educational efforts; close collaboration should be maintained with the infant food industry to promote activities for nutritional improvement while recognizing the advisory role of the medical and health professions and accepting their guidance at all stages. The special responsibility of the government to provide safeguards against toxicity and to ensure nutritional value and other safety criteria for indigenous commodities used in the manufacture of nutritious foods was underlined.

## THE NEED FOR REGIONAL AND NATIONAL INDUSTRY COUNCILS AND HOW THEY WOULD FUNCTION

by P. S. Venkatachalam\*

In the course of this seminar we have heard many ideas and several concrete suggestions as to how, using existing resources and facilities, we can improve on the less than satisfactory infant and child feeding practices prevalent in this part of the world. These ideas are not new, but no organized efforts have been made so far to implement them. Here and there, individuals and small groups have taken the initiative for action that has yielded some success. But the results have been negligible compared to the vast size, extent and complexity of the problem. Thus there is urgent need to coordinate the efforts of all groups and individuals having concern for infant and child nutrition. Their efforts must be sustained in order to bring about any visible impact.

### The concerned groups

Persons having major responsibility for promoting satisfactory infant and young child feeding practices in our communities and who should take a lead in implementing the policies and practices recommended in this seminar are a) medical and health professionals and ancillary personnel; b) officials of responsible commercial infant food companies operating in the region; and c) government officials responsible for the health, nutrition and welfare of children.

Unfortunately, these groups have not until now joined to pool their resources and facilities to bring about necessary change. Each group has its own concept of infant and child feeding and has been operating independently in the belief that their own efforts are in the best interests of babies. These independent activities, which may not always be sound, are further complicated because of individual differences in approach and practice within the membership of the groups. Actions are not infrequently contradictory either in purpose

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Edited version of a paper (PAG document 1.14/40) for PAG Regional Seminar, Singapore, November 1974.

or content or both. The result has been confusion in the minds of community members, particularly families and especially the mothers, who have the ultimate responsibility for feeding babies.

#### Coordinating action

To successfully implement the policies and practices recommended in this seminar, it is essential that the medical and health profession, appropriate government officials and the representatives of all the infant food industries operating in this part of the world come together with mutual trust, respect and confidence to work in coordination and in full cooperation with constant consultation. The enormous resources and the creative skills of industry, the prestige and influence of the health professionals backed up by their sound knowledge of nutrition and health-related matters affecting infants and children, and the regulatory powers and supervisory status of government officials are the pillars of this coordinated joint effort for action against prevalent improper infant and young child feeding practices.

It was with this objective in mind that the PAG conducted earlier international seminars, which met with great success and which led to the development of PAG Statement No. 23 on promotion of special foods [infant formulas and processed protein foods] for vulnerable groups, which was a product of effective cooperation between pediatricians and industry representatives. One of the recommendations of an earlier seminar, which was endorsed by the PAG, was that there is need to establish a mechanism for continuing collaboration between representatives of industry, the medical profession and governments in the form of industry councils in regions of the world where serious problems exist in infant and young child feeding.

The present seminar, which enjoys the participation of eminent medical teachers,

health professionals and nutritionists, official representatives of the health departments of the governments of six countries, and senior officials of infant food companies operating in the region, is the outcome of this PAG recommendation.

#### Regional industry council

It is heartening to note that our seminar has indicated general agreement on the need to implement the policies and practices discussed during the last two days. To continue this cooperation and make it meaningful, there is a need for a permanent body designated as a regional industry council open to industries marketing infant and baby foods in the countries represented. The membership of the regional industry council would be as follows:

1. A representative from each of the companies operating in the region--either the senior executive at regional headquarters or the senior sales executive. New or smaller commercial enterprises may fail to join the membership of the regional council in the initial stages. However, a successful council with effective programs supported by all groups interested in good child feeding can be expected to draw them in.

2. One representative from the medical/health profession from each country, who should be experienced and knowledgeable in the art and practice of child feeding recommended by the seminar as applicable to and acceptable in the region. (A system of nomination by the professional societies should be evolved).

Such a council should meet at least once a year, preferably at the time of the annual meeting of the appropriate professional society.

The regional industry council, whenever it reviews policy, plans or program activities of a particular country, should automatically

convert itself into a national industry council. It would then have as its members, all those indicated in 1. above but from 2. only the representative from the country concerned. The national industry council should also enlist as members two or more individuals who are medical/health professionals and/or nutritionists engaged in activities related to child feeding from the same country and an appropriate health official from government to serve the council at the national level. These enlisted members should be those nominated by the appropriate professional bodies and government agency respectively. The meeting of the national council could be held more often than once a year without difficulty.

Thus the industry council can play a significant role on both the regional and national levels. The council should be free to receive comments, suggestions and necessary guidance from individuals or special groups who, whenever required, may be invited to participate in the activities of the council as either observers or consultants.

#### Functions of the council

The most important function of the council would be to provide a forum for face-to-face dialogue among all the groups having a concern for infant and child feeding and nutrition and also to implement the recommendations made in this seminar. Whenever the practice of a member industry seems to go counter to the decisions agreed upon, the matter could be made the subject for discussion in the council. Such a forum would also be useful for regular evaluation of information and data that continuously become available in the area of interest.

In order to implement the recommendations successfully, it would be necessary to analyze them and to identify corrective steps and where they should be taken. Once these were identified, appropriate action plans would be drawn up and implemented. Broadly, the

activities would fall under four headings: a) monitoring and surveillance; b) education; c) training; and d) research. The seminar has discussed the details of these activities, so they need not be repeated here. However, it is important to mention that the research activity should be of a practical nature and oriented to collection of required data relevant to planning program activities, evaluation of programs and the study of trends in infant and child feeding. The council may consider publishing a periodic newsletter that would give information on its activities and on related programs operating in the different countries. Also, the council might hold under its auspices, periodic seminars, separately or in appropriate groupings, for doctors, nurses, health extension staff, industry managers and other professionals employed by them.

#### Financial resources for council's activities

The necessary funds for the activities of the industry council should come from the member industries operating in the area.

#### PAG role in the council's activities

Having initiated the establishment of the council, the PAG would be greatly interested in its activities and programs and would help to publicize them internationally to all groups and agencies interested in the improvement of infant and child nutrition. In addition, the PAG would also bring to the council all pertinent information on developments useful for its activities. Since there are plans to stimulate establishment of more of such councils in other regions where the problem exists, it will soon be possible to integrate the efforts of all the regional councils.

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#### DISCUSSION SUMMARY

Industry presented the seminar with the consensus reached at a separate meeting of its representatives held prior to the seminar; the

seminar welcomed their proposal that they would work immediately through a steering committee to establish an international industry council. Industry representatives explained the difficulty of deciding at this seminar to establish regional and national industry councils: all the companies operating in this region were not represented at the seminar.

A council, whether international, regional or national, when established, will serve as a forum for meaningful dialogue between industry, government and the medical and health professions as well as other interested groups such as consumer associations, women's groups, etc. The councils will work very closely with the government and the

medical and health professions and will be both an advisory and implementing body.

While decisions regarding the councils' terms of reference, membership etc. could not be made at the seminar, it was suggested that the national councils, when established, should form liaisons with the national nutrition centers, food technology societies and appropriate professional societies.

Although industry representatives were taking steps to establish an industry council, it was noted that informal set-ups at the national level could start work immediately to review and examine the various recommendations made in the seminar.

#### THE WORLD FOOD CONFERENCE: A BRIEF REPORT\*

For twelve days in November 1974 worldwide attention was focused on Rome where from the 5th to the 16th the World Food Conference was held. It was attended by 130 national delegations, representatives of six national liberation movements, various organs of the United Nations Secretariat, United Nations bodies, United Nations specialized agencies, inter-governmental organizations and 161 international and national non-governmental

organizations. The PAG was represented by Dr. M. S. Swaminathan, its Vice-chairman, and by Dr. Max Milner, Scientific Secretary and Director of Secretariat.

The World Food Conference was first proposed in September 1973 with the intention of charting a long-term course for the food and agricultural programs of the world. However, by the time the conference was convened it was faced with more pressing problems, among them reduced harvests in many parts of the world, sharply increased costs with consequently higher food prices, and the prospect of famine in some countries along with the stark reality of its arrival in others.

The foundation for the conference had been laid in the preparatory phase. There were two prominent cornerstones. The first was the document entitled "Assessment of the World Food Situation, Present and Future" (1). There was general agreement with the assessment of

\*The PAG Secretariat does not distribute the United Nations documents mentioned herein. The complete proceedings and documentation of the World Food Conference are soon to be published under the auspices of the United Nations; PAG Bulletin readers will be informed of its availability in due course. A summary report, "The World Food Conference: action taken at Rome", may be obtained from the Center for Social and Economic Information, Room 1061, United Nations, N. Y. 10017, U.S.A.

the situation and the nature and magnitude of the world food problem as presented in these documents. Where speakers differed from the assessment, it was mainly with respect to the relative importance assigned to the principal factors that had precipitated the current crisis and the uncertainty inherent in making quantitative forecasts.

The second cornerstone was the strategy for dealing with the situation as it had been assessed. The strategy was outlined in the document, "The World Food Problem: proposals for national and international action" which was discussed in the last part of the preparatory phase of the conference (2).

The basic strategy is that the solution of the world food problem requires coordinated action on three important fronts:

1. To increase food production, especially in developing countries;
2. To improve distribution and consumption of food;
3. To build a system of food security.

The conference was in general agreement on these points; its major task was to hammer out the details. It made recommendations in the form of a "Universal Declaration on the Eradication of Hunger and Malnutrition" and twenty-two resolutions.

Specific action was taken on the strategy. On the first point, the conference called for the establishment of an International Fund for Agricultural Development to channel investment into agriculture in the developing world. Contributions would come from both traditional donor nations and those "third world" countries with ample funds derived from resources such as petroleum. The fund would become operative when the Secretary-General of the United Nations determines, in consultation with the contributing countries, that it holds promise of "generating substantial additional resources," and that its operations would have reasonable prospects for continuing.

On the second point, the conference accepted

the principle of forward planning of food aid on an intermediate-term basis, and approved a commitment to provide commodities and financing for such aid to a minimum level of 10 million tons of cereals each year, beginning in 1975. Other food commodities are also included. The aid would be used primarily for nutritional improvement and for rural development and would continue only until agricultural production in developing countries is increased, which is one of the long-term goals of the conference.

On the third point, the conference recommended adoption of an International Undertaking on World Food Security. This is a plan for national stock holdings of basic foods, primarily cereals, to be internationally coordinated, for the purpose of avoiding acute food shortages and to sustain the steady expansion of food consumption in countries with low levels of per caput food intake.

A vital component of this plan is a Global Information and Early Warning System on Food and Agriculture. It provides for an international network to monitor current food production, stocks, prices, export availabilities and import requirements. It would also report on weather conditions that affect food production and on prices and supplies of agricultural inputs such as fertilizers. In addition, it would attempt crop forecasting on a global basis. The conference agreed that the FAO is the most appropriate organization to operate and supervise such a system, which is in a way an expansion of the present FAO early warning system. The conference requested the FAO, in cooperation with other international organizations, particularly the International Wheat Council, to formulate arrangements to establish such a system. The conference requested all governments to participate in the system and extend full cooperation on a voluntary and regular basis, by furnishing as much current information as possible, including forecasts. In the beginning the system is to concentrate on basic foods, particularly grains. It will later be expanded to cover a wide range of food commodities.

As another measure to strengthen food security,

it was recommended that governments should, when possible, earmark stocks of food or money for emergencies. They should develop international guidelines for such emergency stocks to provide for their effective coordination and to ensure that food relief reaches the neediest and most vulnerable groups in developing countries.

One of the major recommendations was to set up a World Food Council at the ministerial or plenipotentiary level, which would function as an organ of the United Nations reporting to the General Assembly through the Economic and Social Council. It would serve as a mechanism for providing overall integrated and continuing attention for the successful coordination and follow-up of policies of all the agencies of the United Nations system concerning nutrition, food production, food security, food trade and food aid as well as other related matters. The United Nations General Assembly subsequently endorsed the recommendation on 17 December 1974 by voting to establish the World Food Council. It also elected to the council thirty-six United Nations member states from a list of forty that had been submitted by the Economic and Social Council.

The World Food Council will be serviced within the framework of the FAO in Rome. It is expected to receive periodic reports from the board of directors of the International Fund for Agricultural Development and from the United Nations Conference on Trade and Development (UNCTAD) through ECOSOC. In addition, relevant information will also be provided by the General Agreement on Tariffs and Trade (GATT).

Two important committees are expected to come under the World Food Council. One will be a Committee on World Food Security. Its terms of reference will include reviewing the main supply and stock provisions of basic foods, evaluating the adequacy of stock levels, reviewing actions taken by governments on the International Undertaking on World Food

Security, and recommending policies and actions. The other will be a Committee on Food Aid Policies and Programmes with the task of improving coordination between bilateral and multilateral food aid programs. It is intended that this committee will recommend, through the World Food Council, improvements in policies and operations.

The actions discussed above were incorporated in the resolutions of the conference. Many cover specific topics and denote priorities and policies, including some recommendations that coincide with those made by the PAG in recent years. Among the twenty-two resolutions of the conference were those on priorities for agricultural and rural development; fertilizer development; food and agricultural research, extension and training; policies and programs to improve nutrition; assessment of soils and land capability for agricultural production; scientific water management, i. e. irrigation, drainage and flood control; the participation of women in solving world food problems; achievement of a desirable balance between population and food supply; pesticides; seed industry development; reduction of military expenditure for increasing food production; and international trade, stabilization and agricultural adjustment.

The recommendations on nutrition policies and programs call on governments and the international community as a whole to formulate and integrate plans and policies aimed at improving consumption patterns in their socio-economic and agricultural planning. For this purpose the conference asked that the character, extent and degree of malnutrition in all socio-economic groups be assessed, as well as the preconditions for improving their nutritional status. The conference also recommended that the FAO in cooperation with WHO, UNICEF, WFP, IBRD, UNDP and Unesco, assisted by the PAG, prepare a project proposal for assisting governments to develop intersectoral food and nutrition plans.

In his final address, Sayed Ahmed Marei, Secretary-General of the World Food Conference

assessed its achievements. The first accomplishment was, in his view, "the widespread interest and concern regarding the problems of hunger and malnutrition that the conference has generated; even the chronic problem of malnutrition, with which somehow the world had regrettably begun to reconcile itself, came into sharper focus." He said further, "Whatever differences of viewpoints there were within groups, everyone recognized that there was at hand a humanitarian problem, which must be solved. It was in this spirit that all participants showed their recognition that we live in an age of interdependence, and that no country, big or small, rich or poor, can live in

isolation. This widespread interest and this growing concern are the most important prerequisites for more effective action in the future."

#### References

1. United Nations document E/CONF. 65/3; see PAG Bulletin, Vol. IV, No. 2, pp. 39-43. The information contained in this document was updated in a note entitled "World Food Situation in Mid-October 1974", United Nations document E/CONF. 65/11.
2. United Nations document E/CONF. 65/4; see PAG Bulletin, Vol. IV, No. 3, p. 45.

### MAKING HARD CHOICES BETWEEN COST-BENEFIT STREAMS OF HEALTH AND NUTRITION PROGRAMS

by Asok Mitra\*

Until recently the problem of nutrition in India was viewed largely in the context of recurrent famines and droughts in the nineteenth and twentieth centuries. Lately, despite a long tradition of considering nutrition in the context of poverty, health and nutrition workers and official programs of nutrition in India have been involved in narrowly specialized programs for infant and child nutrition which were designed along developed-world patterns. While such programs have some relevance, this paper emphasizes the importance of the well-being of the entire undernourished population and the indirect but perceptible nutrition benefits that may accrue from programs in fields other than nutrition. It is considered that delivery of positive nutrition programs in poverty areas can be of value only if non-nutritional steps are taken to prevent wastage of the nutritional benefits.

The more important point at issue in most underdeveloped countries is poverty and income disparities with the result that the lower deciles of the population can aspire only to basic foods that demand a minimum of processing, storage and transportation costs. They cannot aspire to highly valued semi-processed or processed foods which because of high production, processing, storage and transportation costs, are out of reach of the lowest incomes. These foods fall into the realm of the "token" and the "precious".

In poor societies where little leeway is permitted in ordinary diets, nutrition programs must of necessity be directed more towards conserving the nutritional results of the foods poor people can afford rather than introducing new foods or variants that may often be priced out of reach. This calls for hard decisions with particular regard to the realities of the specific social and economic situations of each low income country.

\*Member, PAG. Edited version of a paper (PAG document 8/21) for the 22nd PAG Meeting, Rome, June 1974.

Considering the present energy and fertilizer crises, none of them will be able to afford programs that distribute token or precious foods. Such programs cannot be widely replicated either because of the cost or non-availability of the foods. Not only will hard choices have to be made, but they will have to be related to the goal of rapid modernization of attitudes of people in the lowest income brackets. The present paper ventures to examine several of these issues that appear not to have been discussed to the extent they deserve.

Of course recent improvement in food processing and food technology in India today have brought within the reach of poor incomes products that would have been regarded as prestige or luxury foods yesterday. There is also an increasing realization that special foods need not be so expensive as to price themselves out of the reach of the lowest income families or of babies in low income homes. There is therefore an eminent case for new technology and new distribution and marketing systems to be in step with the new concern for babies and young children, expectant and nursing mothers. However, this calls for repeated appraisal of the social and economic milieu and a dedicated search for changes in social attitudes and values as well as the agents or means likely to induce them. The new thrust of the nutrition movement in recent years on the unborn, the newborn and the preschool child, has substituted new values and emphases for old, but these changes may not last unless certain essential reforms are simultaneously undertaken to underpin them.

For low income groups in any country, children constitute the only tangible pool of capital which can be reproduced at little perceived cost should the earlier units of created capital be taken away by death. The perceived cost of this capital is low up to age seven or eight when a child begins to relieve the earning members of the family from light but time-consuming routine chores. The cost of the child is kept negligible or just on the margin in matters of food, clothing, bedding,

housing, and of course education and health expenses. The health expenses, such as they are, are mostly subsidized or rendered free by the government and do not add to the perceived cost of the child to the family.

Until a child reaches age three or four or sometimes six or seven years, when parents become reasonably certain of the child's survivability, there is a tendency to neglect his special nutritional requirements. Proof of this contention is that although mortality in all other ages has sharply declined in the last twenty years, infant mortality and mortality in ages one to three are still high. This can be ascribed largely to neglect of infants and children in low income countries until the age of survival is reasonably in sight.

The effects of this neglect are compounded by lack of public health and elementary child care facilities; consequently parents find it difficult to save their children even from preventable or easily curable illnesses. (Although children under five often constitute over 25 per cent of the population in most poor countries, pediatricians constitute no more than 5 per cent of the qualified medical personnel, most of whom are concentrated in urban areas.) In poor families any special food that is prepared or purchased is likely to be diverted to those members of the family who are engaged in earning. Such diversions have a rational basis: it is better to invest in a currently productive person than in an uncertain future asset. It is important to acknowledge the rationality of this kind of decision because keeping the head of the family and earning members alive and productive is far more important than spending on a non-earning person whose life is rendered precarious by the lack of ordinary preventive and curative facilities. Yet, nutritionists in most situations, find it horrifying even to acknowledge this rational decision on the part of poor families.

It is important at this stage to differentiate between severe malnutrition such as kwashiorkor or marasmus and low levels of nutrition and malnourishment. The former would in any country occupy a very small fraction of the total range of malnutrition and

malnourishment. Kwashiorkor or marasmus require special attention and nursing and consequently money. Cures are many times more costly than preventive measures and make heavier demands on logistics. Even so, they are best handled in hospitals and followed up in rehabilitation establishments, since the costs of upgrading the social and environmental milieu to fight them are high for poor societies.

Prevention is in most cases more economical than cure. By the same token, prevention of wastage through communicable and parasitic diseases is usually far more economical and enduring than positive intervention programs addressed to specific age, sex, social or economic target groups, particularly in poor countries with wide income disparities. First, the disparities in these countries make it very difficult to isolate and hold on to such target populations. On account of the disparities and the political and economic distances they generate, positive programs intended for one target group mostly end up being delivered to another. Second, the entire bureaucratic and political power structure down to the village population unit has a way of gravitating towards and favoring privilege. Third, the logistics and organization of production, storage, transportation and delivery become so extended and expensive as to place the final product out of the reach of the originally intended recipients.

It is important to proceed from the concept of intervention programs per se, such as the common kinds of nutrition programs, to the concept of a package of modernization programs that will change a nation's attitudes towards problems of sanitation, public health, education and welfare, and will help in the transformation from traditional to modern the perceived values and costs of a child. Pure intervention programs which do not simultaneously attempt attitudinal changes are apt to be treated as charity by both giver and receiver. Delivery systems, even for productive inputs (such as fertilizers, agricultural loans or inputs, or earmarked grants) to very low income or economic groups are often

reduced to tokenism and make a mockery of the government's original intentions. Delivery systems for special consumption are liable to even greater misdirection.

From the social cost-benefit angle therefore, nutrition programs that are corollaries or fallouts of, and ride piggy-back on more pervasive and preventive programs, particularly the kind that fortify new social attitudes and values, have greater chances of success with low income groups.

The malaria eradication program of the 1950's and the maintenance programs that followed have had a far greater effect on conserving and promoting nutrition in the population, particularly among the young, than the sum of all other positive programs on nutrition undertaken so far. It is possible to argue that even this program would not have succeeded unless backed by other social measures. In a poor country the human body, particularly a child's, is like a leaking nutrition bucket; intestinal diseases, parasites, exposure, communicable diseases, preventable infections can take away more than what pumped-in nutrition can give. It seems important that concerted research be undertaken in the fields of medicine, epidemiology, public health, social medicine and the social sciences to assess the number and relative size of the holes that make up the leaks in this bucket. In any case if the leaks are not properly investigated as to their potential for loss and if they are not plugged, much of the poured-in nutrition will be wasted. Thus programs of immunization against communicable diseases and other infectious diseases such as tuberculosis and measures that offer protection against exposure to severe cold and heat can, from the cost-benefit angle, be nutritionally far more beneficial to low income groups than direct programs of nutritional intervention. It can also be argued that the provision of potable water from village wells and other protected water sources can prevent wastage and leakage of nutrition far more effectively than additions to nutrition through feeding programs. Preschool and primary education can play more effective host to modest nutrition programs for their age-level children

than such programs aimed at the same groups outside of school.

In any social welfare program for communities with social and income disparities, the chances for proper delivery improve in direct proportion as one proceeds up the income scale. Of necessity, any nutrition program that aims to monitor cost-benefit ratios will have to concentrate more on prevention of wastage and leakage of nutrition rather than on positive delivery programs to target groups. The simple reason is that the former has greater chances of reaching them.

Figure I attempts to schematically chart the possible payoff of a) pervasive programs

which largely benefit all income groups as well as intended target groups, b) restricted positive or curative programs intended for specific target groups. The horizontal axis indicates the extent of possible utilization and coverage of each program in terms of population. Each horizontal slab is divided into two segments; the hatched portion indicates the area of high payoff and the unhatched that of low payoff. The vertical axis suggests the rising or cumulative cost per thousand children a) protected from wastage and leakage of nutrition, and b) benefiting from positive nutrition programs. The vertical axis is divided by a horizontal certainty line that suggests that programs below this line have much greater chances of conferring benefits than those ranged above it.

Figure I.

Relative Costs and Payoffs of Public Health and  
Positive Nutrition Programs  
(Schematic Presentation)

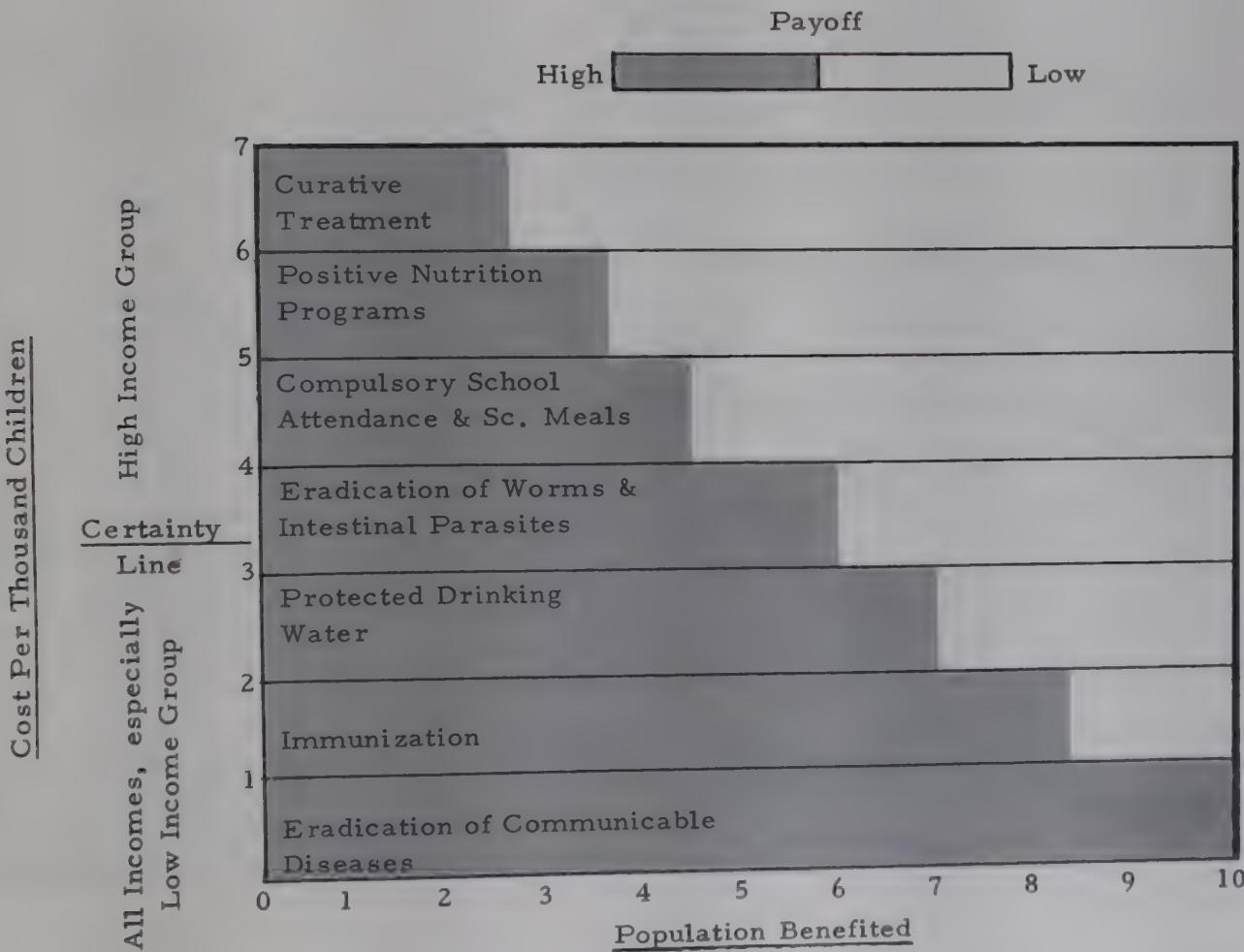


Figure II attempts to schematically chart the number of people likely to be benefited in relation to costs of specific programs. On the horizontal axis, estimates of population benefited are ordered while the vertical axis indicates cumulative costs of successive programs related to the population benefited.

However, this diagram is simplistic and suggests a unitary stream of total benefits or total costs whereas, in reality, several streams of costs and benefits have to be assessed and optimized. For example, let us take two hypothetical streams of costs and benefits, A and B, Table I.

Table I.  
Streams of Costs and Benefits of  
Two Simultaneous Programs

Program A		Program B	
Expenditure	Population Benefited	Expenditure	Population Benefited
X	Y	X	0.5 Y
2X	1.9 Y	2X	0.95 Y
3X	2.6 Y	3X	1.35 Y
4X	3.2 Y	4X	1.7 Y
5X	3.7 Y	5X	2.0 Y
6X	4.0 Y	6X	2.25 Y
7X	4.2 Y	7X	2.40 Y
8X	4.12 Y	8X	2.53 Y
9X	4.05 Y	9X	2.63 Y
10X	4.0 Y	10X	2.7 Y

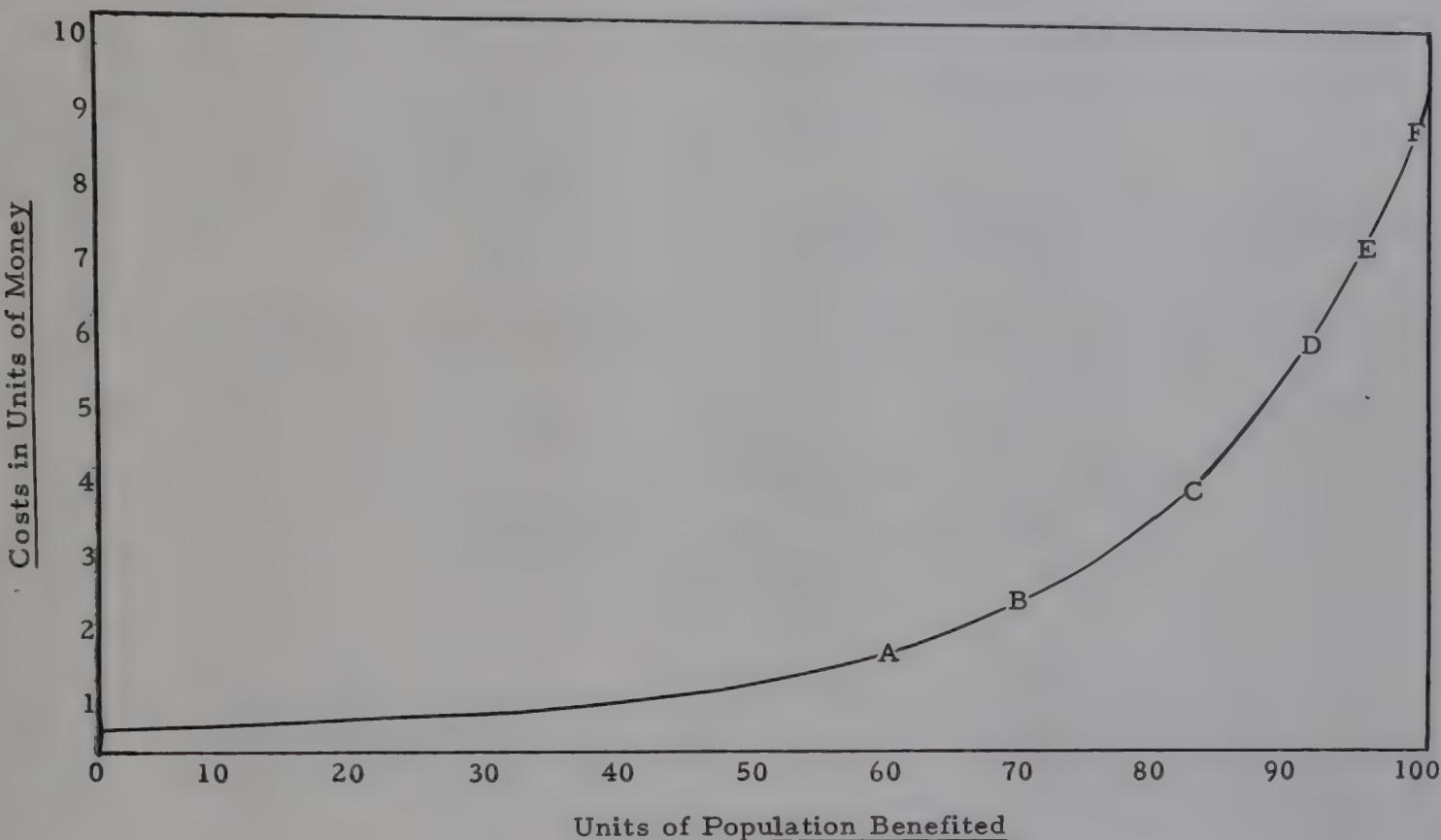
In other words, by expending 10X units of currency, we can benefit a population of 5.7Y persons in one of two ways:

1. Expenditure of 6X units on Program A benefits 4Y population;  
 Expenditure of 4X units on Program B benefits 1.7Y population.
2. Expenditure of 5X units on Program A benefits 3.7Y population;  
 Expenditure of 5X units on Program B benefits 2Y population.

The intention of Figure II is to suggest that the costs of programs of epidemic control, triple immunization, provision of iodized salt, massive doses of Vitamin A, iron

fortification tablets, standardized baby clothes for protection against cold exposure, subsidies on basic cereals and staples (with the effect of bringing more food within the reach of the lowest income groups), potable water, school meals, housing and eradication of worms and other intestinal parasites will safeguard the nutritional needs of more people at a lower cost than positive nutritional or curative programs. The latter will by contrast consume many more times the money to effectively reach an equivalent target population. Even then, the completeness of coverage and the efficiency will be doubtful. The exact national strategy mix for plugging the leaks in the nutrition bucket of a child will of course depend on the relative priorities, on the sizes of the leaking holes and the costs of plugging them.

**Figure II.**  
**Relative Costs of Public Health and Nutrition Programs**  
**and Populations Benefited**  
**(Schematic Presentation)**



**Legend**

- A. Control of communicable diseases, immunization, massive vitamin A doses, sanitary drinking water
- B. Eradication of worms and intestinal parasites, use of iodized salt
- C. Subsidy on basic cereals, standardized clothes and low-cost housing
- D. Primary school meal programs
- E. Positive nutrition programs for infants, mothers, children
- F. Curative programs

Two more illustrations have been attempted, classified into categories of relative payoff (population benefited, increase in productivity and efficiency of institutions) and certainty

of results. Thus a matrix of four possibilities might be drawn as in Figure III. The programs have been inserted in the four boxes speculatively and certainly will need investigation.

**Figure III.**  
Certainty and Payoff Patterns of Integrated Perinatal,  
Prenatal and Postnatal Maternal and Child Care  
(Schematic Presentation)

		PAYOFF	
		High	Low
CERTAINTY	High	Postnatal maternal & child care	Perinatal maternal & child care
	Low	Prenatal maternal & child care	Preschool child feeding & child care

Figure IV is another speculative matrix of low and high certainties and payoffs with

respect to some of the currently discussed programs.

**Figure IV.**  
Certainty and Payoff of  
Some Ongoing or Contemplated Programs  
(Schematic Presentation)

		PAYOFF	
		High	Low
CERTAINTY	High	Iodized salt, iron fortification, subsidized basic foods, pricing policy with respect to cereal, high protein & edible oil crops	Semi-processed foods (CSM, Poshak, Sukhadli, etc.)
	Low	Vitamin A, concentrated baby foods	Processed and packaged food (including those using imported scarce ingredients)

The author apologizes for leaving these diagrams at a speculative level without any attempt at quantification either at the macro or micro level. He is also aware that several of the programs he considers low cost, high certainty and high payoff, take for granted a large administrative network down to the village level. At the same time he would plead that this network can be a mixture of stipendiary and voluntary or marginally compensated staff that will keep the overall costs low under community supervision. The

cost of setting up a comparable network to dispense scarce foods or other nutritional ingredients would certainly be higher with the greater likelihood of the items being diverted.

The recent cataclysm in price and availability of petroleum products has had a devastating effect on availability of chemical fertilizers and other agricultural inputs, not to mention other commodities. As a result the maintenance

of basic cereal supplies will continue to be a major task of the governments of poor countries. Many specific target programs will have to be abandoned and considered as frills. Governments will be hard put to maintain minimum nutritional balance for the lowest income groups, mainly in terms of calories.

Essential in the new situation will be a wise pricing policy that will directly encourage cultivation and production of specific crops aimed at improving a nation's nutrition.

In the new situation, non-producing children will again become more vulnerable than they were in the past 15 or 20 years. Any program of food delivery intended particularly for them will run the risk of being diverted to other groups who need them more for reasons of short-run social and economic productivity. Food administration, particularly with respect to storage and delivery to target groups, will demand much closer effort.

It is easy to speak of the realities of a country's situation and their compulsions, but it is not so easy for those in charge of international programs, including scientists and persons of great sagacity and wide experience, to take these realities into account and to modify the archetypal patterns of programs to meet a country's special needs. Such modifications may make a scheme seem untidy to its donors and administrators. The author has in mind particularly the rather simplistic, act-of-faith clinical approaches which have balked family planning programs for the past 15 years. It is not always possible for governments of aid-seeking countries to insist that the realities of their situation be taken into account; they too often find it difficult to resist the pressures that thrust on them programs that elsewhere in entirely different situations, seem to have proved right or offered such promise. Lady Bountiful is often too impatient so that she ignores the more basic problems of effecting desirable social change, a prerequisite

to success. As a result, particularly as we have seen in the realm of family planning, schemes and programs imposed without adequate circumspection, have repeatedly fallen short of success.

Direct intervention programs of nutrition therefore may tend to be too technologically or clinically biased to induce that element of social change which alone can put people on the path of self-sufficiency.

Most poor countries are not well endowed with highly efficient official organizations reaching to the village level. These countries find it strenuous even to organize the proper logistic chain. The writ of the central plan gets distorted many times over as it percolates downwards, but the illusion persists that once a decision is made at the top it is translated without delay and implemented efficiently down the line. There is a belief that nothing goes awry between a decision at the top and its implementation on the ground! Any bureaucracy finds it difficult to correct its course in midstream. An inefficient unofficial chain engaged in dispensing aid takes even more time to change. This is an area that is seldom discussed frankly and fully before archetypal patterns are set and responsibility for decisions is fully assumed.

Any nutrition program addressed to specific target groups will therefore need more rigorous analyses of social cost-benefit and feasibility of delivery logistics. They also have to be tailored to the realities of a country's situation and needs. They must not be actuated by considerations more applicable to other social and economic milieux.

In sum it seems more important, particularly as the basic foods become less plentiful throughout the world, to concentrate on programs that will prevent loss by leakage and wastage of the nutrition that is already available in ordinary diets of the poor in poor countries. The reason is that more is lost by leakage and wastage than can be replenished by direct intervention

programs. Such programs are always more costly, less administratively feasible, and less susceptible to community supervision than a broad band of public health, education, and social welfare measures that can prevent the leakage.

Programs of prevention of leakage and wastage of nutrition are perhaps better endowed with elements of modernization and social change and can better ensure self-sustaining growth than direct nutrition intervention programs. As a prerequisite it is important to investigate the relative importance and dimensions of the holes in the leaking human bucket in order to arrive at notions of which programs will confer the greatest benefits at the least cost. There seems little doubt that the diagnosis will vary from region to region, poverty level to poverty level, and social milieu to social milieu.

A man who learns how to catch fish stands a greater chance of eating fish more often than one who is given fish. Similarly, a carefully calibrated and fluctuating pricing and inputs policy for selected food crops, legumes and oilseeds is likely to bring more nutrition to the poorer deciles of the population, with associated benefits of income distribution, than is a host of direct programs. It is

important to weigh carefully at each step what benefits whom, where and how. It is also important to appraise the administrative set-up and to identify the points where, why, and how grievous distortions of the original intention can occur; it is necessary to ensure that the network is adequate and works satisfactorily as a vehicle for modernization, since the ultimate aim of all nutrition policies must be to induce the enduring confidence of target populations at the national level and of families at the household level. Periodic evaluations are needed to ensure that programs do not degenerate to ineffective showpieces but operate as good instruments of income distribution.

Finally, old food habits and notions about prohibited and permissible foods--particularly those that are supposed to be bad or good for infants and pregnant and nursing mothers--are some of the most stubborn to modify or replace. Thus, it is a matter of prime importance to investigate whether positive nutrition intervention programs for pregnant women, nursing mothers, newborn babies and infants can have reasonable chances of expanding success unless stoutly fortified by universal primary education and various kinds of informal education, especially for girls.

#### CHANGE IN SECRETARIAT

Mr. Jacobo Schatan, a national of Chile, became Scientific Secretary of the PAG and Director of the PAG Secretariat on 25 January 1975, succeeding Mr. Max Milner, who held the position from July 1971. Mr. Milner has retired from the United Nations system but intends to remain active in nutritional affairs. A planning economist, Mr. Schatan comes to PAG from FAO, which he joined in 1956, first with the former Economic Analysis Division of FAO in Rome. In 1962 he became Director of the Joint ECLA/FAO Agriculture Division in Santiago, Chile, a post he held until the end of 1973, when he was named Deputy Director of the Food Policy and Nutrition Division of FAO in Rome.

## BOOK REVIEWS

The Conquest of Famine. W.R. Aykroyd. 1974. Chatto & Windus, London. £5.00. 210 pp. & index.

N.B. A U.S. edition with an introduction by the Nutrition Foundation is scheduled for publication in April by the Reader's Digest Press, distributed by E.P. Dutton, New York. US \$7.95 (tentative).

The story of some of the world's large recorded famines is told in this interesting and timely book. The outbreaks it discusses occurred in disparate settings from past to recent in various parts of the globe, including famines that ravaged China, Egypt, Ireland, India, Nigeria, Russia and many other places. Different famines had different causes, and the author gives a brief and absorbing account of the complex chain of events that led to each. He discusses their short or long incubation periods and the imperceptible metamorphosis from food scarcity and shortage to famine and its attendant disruptions. He also deals with the types and quality of relief measures provided as well as the stages of recovery from famine.

Although famine is a painful and depressing subject, this book treats it with great sensitivity and even with humor and wit where appropriate. The reader's interest is held by numerous anecdotal narratives.

It is doubtful that the scourge of famine can be wiped from the earth. The unpleasant fact is that conditions favorable to the development of famines continually appear in various places. Moreover, as the author states, the prerequisites for a worldwide famine are vaguely evident even now. It is only through experience gained and the lessons learned from past efforts that one can evaluate the present situation--hopefully to anticipate events and take timely preventive steps. Dr. Aykroyd has rendered a useful service by writing this book now.

Facing Starvation: Norman Borlaug and the Fight Against Hunger. Lennard Bickel. 1974. Reader's Digest Press, distributed by E.P. Dutton, New York. US \$8.95. 376 pp.

One of the key points in the strategy of the Green Revolution was that it was spread by a whole army of agriculturists to many parts of the world. There, grain fields became battlefields in the continuing war on hunger. This strategy is important to mention in this review of the biography of Norman Borlaug, who might accurately be termed the field marshall of the Green Revolution; he would be among the first to point out that the work of bringing high-yielding, pest-resistant grain varieties to the developing world was a group effort. Indeed, in 1970, when informed he had won the Nobel Peace Prize, realizing he was one of many, Dr. Borlaug explained to a colleague, "They've just singled me out to say thank you".

For whatever reason, popular awareness of his work is greater than that of the man himself; the name Norman Borlaug is virtually unrecognized by the general public who may otherwise have at least some idea of what the Green Revolution is about. This popularized book will satisfy those who want to know more about Norman Borlaug the man and at the same time will fill in the details of the Green Revolution in layman's language.

The story of the "miracle" high-yielding dwarf wheat varieties is now history; it is retold in this book. So too is the behind-the-scenes account of how the Green Revolution was spread through the world. The author, an Australian science writer, has got his facts straight and told the story well and simply.

The Green Revolution is not without its shortcomings, and it certainly is not the single simple solution to world malnutrition. However, it has fed millions who otherwise would

have starved. The example of it and Dr. Borlaug's contributions can demonstrate how other international solutions may operate:

on solid ideas backed by courage, cooperation, tenacity, some money, and lots of hard work.

## NEWS

### Whey--An Important Potential Protein Source\*

Whey, the liquid residual of cheese and casein manufacture, is one of the most important reservoirs of food protein still remaining largely outside human consumption channels (1). World whey output, at approximately 74 million tons in 1973, contains some 0.7 million tons of relatively high value protein, equal to the protein content of almost 2 million tons of soybeans. Yet despite the chronic protein shortage in large parts of the world, a considerable proportion of total whey supplies is still wasted. There have, however, been efforts to make fuller use of this protein source in recent years, and last year's spectacular development, which led to prices of major protein commodities reaching unprecedented levels on world markets, appears to have resulted in an intensification of these efforts.

Traditionally, whey was considered an undesirable element--of little use at best, and costly to get rid of at worst. The most common practice was simply to dump it in waterways. A less wasteful alternative was to feed it to pigs or calves as a supplement to their normal diet, and small quantities were also used as food, mainly in the form of

beverages. With the development of the cheese industry, it became obvious that these traditional solutions were insufficient to cope with the problem of whey disposal. It is estimated that a cheese factory producing 250,000 litres of whey per day can pollute as much water as a city of 50,000 inhabitants. Anti-pollution laws having been introduced and progressively enforced in countries where whey is more abundantly produced, cheese manufacturers have been obliged either to process their whey or to install their own sewage facilities. The former alternative being the lesser of the two evils, the industry is increasing its efforts to develop its existing facilities--particularly for drying--and trying to find new uses for whey. Emphasis is progressively being given to utilization rather than disposal. Today, converting whey into powder, mainly for feed uses, appears to be the most economic solution. Dry whey production has increased very rapidly in developed countries in recent years and is likely to expand further. One possible major effect of this development may be the substitution of whey powder for a part of the skim-milk powder used in animal feeds, thus increasing the supply of the latter for human consumption. Except in the United States, whey powder for food uses is little processed and consumed; its most important uses are for soft drinks, ice cream, baby foods and baked products. International trade in whey powder, though expanding, is still small.

### Reference

1. Mathis, A.G. 1970. More whey is coming. Dairy Situation (September). \*\*\*\*\*  
(News continues on back cover.)

\*Edited summary from a note bearing the same title, which was published in the Monthly Bulletin of Agricultural Economics and Statistics, Vol. 22, No. 9, April 1974. The note is based on a paper presented to the Working Group on Dairy Industry Development of the FAO/Industry Cooperative Programme in April 1974.

## PROTEIN-CALORIE ADVISORY GROUP

The Protein-Calorie Advisory Group of the United Nations System (PAG) is an interdisciplinary committee of internationally-recognized experts who advise the United Nations and its agencies on technical, economic, educational, social and other related aspects of global malnutrition problems and the broad programs and new areas of activity needed for combating them. Since its inception in 1955, the PAG has emphasized protein-calorie malnutrition as a primary and continuing threat to the health and survival of infants and young children in the developing countries and has played an active role in promoting the development of novel and locally-available protein resources for the developing world. The PAG also reacts to socioeconomic considerations, trends in world food supply and consumption and the need for governmental initiatives and priorities in dealing with these problems.

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The purpose of the PAG Bulletin is to promote the exchange of information on the world malnutrition problem among all those who are motivated to work towards its solution. Published quarterly in English, French, and Spanish editions, it is sent gratis to individuals, institutions, and commercial organizations with an active interest in scientific, technological, economic or social aspects of protein-calorie malnutrition on a worldwide basis.

The PAG Bulletin can succeed in its mission only insofar as it can comprehensively and objectively communicate with its readership. Readers are invited to comment in writing on what they read in the Bulletin. In addition, the PAG Secretariat welcomes suggestions for broadening and deepening the scope of the Bulletin, thereby increasing its usefulness.

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### PAG Compendium Published

The PAG Compendium, issued by Worldmark Press, Ltd. is now available. The compendium is a nine-volume collection of all substantive documents of the PAG from its inception in 1955 until the end of 1973. The approximately 7,000 pages contain some 600 papers, in a form readily accessible to the international food and nutrition community.

In cooperation with the PAG Secretariat a new document classification system was adopted, reflecting the PAG's past, current and future interests. Thus all PAG documents in the compendium have been reclassified according to the new system and assigned new numerical symbols. The new system, as announced in a special insert that appeared in the PAG Bulletin, Vol. IV, No. 3, serves as a condensed table of contents for the volumes. In addition, there is a table of contents for each volume, a table of conversions between old and new document symbols, an author index, a topical index, and numerous other features to facilitate the use of the compendium.

The PAG Compendium also contains material especially written for it: a history of the PAG by Dr. M. Milner, an introduction by Dr. N.S. Scrimshaw, a forward by Dr. W.J. Darby and notes by Dr. H.A.B. Parpia.

The PAG Compendium is not available from the PAG Secretariat; it may be obtained at the regular selling price of US \$650.00, distributed worldwide by the Halsted Press division of John W. Wiley & Sons, 605 Third Avenue, New York, N.Y. 10016, U.S.A.

### Wiley edition of PAG Legume Book published

The hardcover edition of Nutritional Improve-

### NEWS

ment of Food Legumes by Breeding, based on the proceedings of a PAG-sponsored symposium held in July 1972, is now available from John W. Wiley & Sons, publishers. The paperback edition, which was reviewed in the PAG Bulletin, Vol. IV, No. 2, June 1974, is still available from the PAG Secretariat free upon request for distribution to developing countries only. The Wiley edition sells for US \$20.95 and contains two new items: a revised preface by Max Milner and an additional paper by Ricardo Bressani, which deals with developments subsequent to the original symposium. For further information on the new edition, write to John W. Wiley & Sons, 605 Third Avenue, New York, N.Y. 10016, U.S.A.

### Indonesia Report Available

Copies of the full report, "Social and Cultural Aspects of Food Patterns and Food Habits in Five Rural Areas in Indonesia" by Mely G. Tan et al., issued by the National Institute of Economics and Social Research and the Directorate of Nutrition of the Department of Health of the Republic of Indonesia may be obtained by writing to L.J. Teply, Senior Nutritionist, Office of the Executive Director, UNICEF, 866 United Nations Plaza, New York, N.Y. 10017, U.S.A. A summary of this report appeared in the PAG Bulletin, Vol. III, No. 4, p. 23.

### Meeting:

3-9 August 1975, Kyoto, Japan. Xth International Congress of Nutrition, sponsored by the International Union of Nutritional Sciences (IUNS). For information, write: Secretariat, Xth International Congress of Nutrition, c/o Kyoto International Conference Hall, Takaraike, Sakyo-ku, Kyoto, 606 Japan. Cable: INTBALL KYOTO.